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Mass Emissions from Diesel Trucks Operated Over a Road Course

Southwest Research Inst, San Antonio, Tex

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MASS EMISSIONS FROM DIESEL TRUCKS OPERATED OVER A ROAD COURSE

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Exhaust emission tests were performed on ten 1970-1973 heavy-duty, diesel-powered vehicles while being operated over the San Antonio Road Route (SARR). Each vehicle was also emission tested using a 13-mode chassis dynamometer test procedure. Comparisons were made on emission data between these two test procedures as well as emission data and fuel-economy data from tests on 25 gasoline-powered trucks tested on Contract No. EHS 70-113, Part 1.

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FOREWORD

This project was conducted for the U. S. Environmental Protection Agency by the Department of Emissions Research of Southwest Research Institute. It was an outgrowth of SwRI Proposal 11-9190, dated January 15, 1973, titled "Acquisition of Diesel Truck Operational Parameters and Comparison of the Data with Available Gasoline Truck Data." The field and laboratory testing phase of the project began in July 1973 and was completed on June 1, 1974. This is the second such project, the first being done under Contract EHS 70-113 and was for similar investigation of 25 1970 and later model year gasoline HD trucks.

The EPA Co-Project Officers were Mr. John T. White and Mr. LeRoy Hidgon. Mr. White's basic interest was in the mass emissions results, while Mr. Higdon was concerned with the road route truck operational parameters. The project was under the supervision of Mr. Melvin N. Ingalls. Project Leader. Mr. Karl J. Springer served as Project Manager and assisted Mr. Ingalls. The project was known within Southwest Research Institute as Project 11-3715.

ABSTRACT

This report describes the results of mass emission tests of ten diesel powered trucks above 6,000 lb GVW during road driving and chassis dynamometer operation. A constant volume sampler was used to obtain dilute samples for CO and NO_x during operation on a 7.24 mile course in San Antonio. Continuous measurement of HC by heated flame ionization method was employed during road testing. Fuel rate, a good indicator of power output for a given diesel engine, was determined continuously during the road tests by means of a CO_2 NDIR measurement and conventional carbon balance calculation. A chassis version of the 1974 Federal Test Procedure 13-mode gaseous emissions test was performed with each diesel truck.

Relative to driving traffic on the road route, the dynamometer results were slightly lower in HC and CO and substantially higher in NO_x. These differences were attributed to the mostly urban type traffic operation of the specific road course used in contrast to the 13-mode test, which employs weighting factors based on intercity and intracity usage. Continuous records of engine speed, vehicle speed, and fuel rate (an indicator of power) were obtained and the reduced data presented in terms of percent of time in a given interval. In doing so, the way in which each truck responded over the closed course is defined. A number of runs made during the 1972 tests of 25 gasoline trucks were reduced and included for future use with other road operational data for mobile sources.

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SUMMARY

A group of ten 1970-1973 model year diesel-powered trucks above 6000 lbs GVW were operated on the road and in the laboratory to obtain mass rates of emissions of HC, CO, and NO_x to aid in determining national impact of heavy trucks. This report describes the results and how they were obtained from both operation over the San Antonio Road Route and in the laboratory using a chassis version of the 13-mode Federal Test Procedure.

The CVS and related equipment were loaded onto the truck, or on board a 40 foot trailer in the case of tractor trucks, along with additional weight to equal the empty weight plus half the payload of the vehicle. A trailer-mounted 20 kw engine-generator set for providing electric power was towed behind. The system was then operated continuously over the 7.24 mile road course.

To define how each truck operated over the San Antonio Road Route, a continuous record of engine speed, vehicle speed, CO_2, and HC was obtained by strip chart and magnetic tape. Several drivers were used to obtain replicate tests with the runs computer-reduced to indicate percent time at various increments of engine rpm, vehicle mph and fuel rate. The continuous CO_2 and HC measurements were used to determine by the carbon balance method the fuel rate to the engine, a good indicator of engine power level. The heated HC FID analysis, performed continuously on the diluted CVS sample, was integrated to determine exhaust HC emission rate.

To extend the ten-truck road group to a larger data base, the 59 vehicle surveillance fleet of 1970 and 1971 trucks and buses tested by the chassis version of the 13-mode FTP were compared to the results of this ten truck fleet in Contract No. EHS 70-109. The 13-mode emission rates, normally expressed in grams per bhp-hr, were converted to grams per pound of fuel using the 13-mode cycle weighted BSFC.

The road results are summarized by engine-vehicle make, model, and vehicle weight. The vehicle speed, engine speed and fuel rate are then analyzed and compared to the 13-mode laboratory results and the 25 truck gasoline fleet. Although an attempt was made to adequately represent all makes and sizes of significant population, the fleet size and the availability of trucks for this purpose were limited. A total of four makes and 10 displacements were included ranging in GVW or GCW from 17,000 to 72,000 lbs. Eight of the ten vehicles were tractor-trailer combinations.

A number of road runs from the previous 25 gasoline truck fleet were computer reduced to increase the operational data base. These results, listing percent of time at various speed, rpm and manifold vacuum increments, augment that previously reported.

CONCLUSIONS

As a result of this extensive series of road and laboratory experiments on the ten diesel trucks, the following conclusions are offered:

1. It is possible to acquire mass emissions from diesel powered HD trucks or tractor-trailer combinations while operated on the road. This series of tests with ten different vehicles and engines demonstrated that exhaust HC can be continuously and repeatably measured using a fast response high temperature FID analyzer with a sample of the CVS diluted exhaust prior to the heat exchanger. A large size CVS, 900 SCFM capacity, was adequate to handle the size engines in this project while "driving in traffic" over the San Antonio Road Route. In addition to measuring the diluted exhaust flow, the CVS provided a means of obtaining bag integrated samples of the exhaust from the entire course for measurement of CO and NO_x.

2. Carbon dioxide concentration in the CVS diluted exhaust was found to be a reliable indicator of net fuel rate consumed by the engine under transient as well as steady-state engine operation. This method required a continuous and fast response detection. Conventional carbon balance calculations which included HC were found to compute the fuel rate with satisfactory accuracy for the need of this project. The addition of suitable CO, NO, or NO_x instrumentation would permit continuous measurement of all major exhaust contaminants during on-road operation. CO is not as significant in compression-ignition engines as in spark-ignition engines. During the combustion process, the availability of oxygen and higher temperatures readily oxydize the CO.

3. As in the previous similar 25 gasoline truck project, the 20-channel data logger with one half inch magnetic tape is necessary to acquire the various data inputs. This system worked well but required care in use and calibration of input variables. Hard copy continuous data recording by means of strip chart recorders is needed back-up to the magnetic tape system.

4. The road HC and CO emissions in terms of g/lb of fuel agreed fairly well with the chassis 13-mode results from the same truck, although the road emissions were generally higher than the 13-mode emissions. The 13-mode results converted to g/lb of fuel by the cycle BSFC showed the 13-mode test to produce substantially higher NO_x, on the order of 60 percent overall, than produced on the road course.

5. One comparison made to the previous 25 truck fleet was on the basis of grams of emission per vehicle ton-mile driven. This is probably the fairest way to compare the HD vehicle since it is based on its social value. It was found that the gasoline powered truck emitted 21 times the CO, eight times the HC, and 1.4 times the NO_x than the

diesel powered truck. This conclusion is based on the ten diesels of this project and the 25 gasoline trucks in the past project. Comparisons based on g/lb of fuel penalize the more efficient engine. Comparisons based on g/mi penalize the larger, overall more efficient vehicle.

6. Within the constraints of vehicle and engine selection of this group of ten trucks and the implications inherent with the operation over the San Antonio Road Route, the emission factors of g/min, g/mi, and g/lb of fuel may be used to estimate the emissions of HC, CO, and NO_x from this mobile source. Extensive additional information on sales by engine make, model, size and application as well as usage data by various breakdowns will be needed to assess the total impact of these vehicles on ambinet air quality.

7. Although most of the ten diesel powered trucks were larger and heavier than the 25 gasoline trucks, the vehicles tended to negotiate the 7.24 mile closed road course in essentially equivalent times and average speeds, both just under 20 mph. From this, it may be concluded that the ten diesel powered trucks, though heavier and generally larger overall, were able to keep up with traffic and the posted speed limit constraints of the route about as well as the 25 gasoline trucks.

8. During the road route test, the diesel engine operated most of the time at or near 60 percent of rated engine speed. This is essentially the intermediate speed specified by the 13-mode test and accounts for 40 percent of the test. Driving the San Antonio Road Route resulted in less operation at or near rated engine speed than employed in the 13-mode test. Analysis of the road route fuel rate data versus the 13-mode power points revealed that driving traffic involved substantially more operation at the lighter loads and less operation at the heavier loads than specified by the 13-mode weighting factors. Time at idle, vehicle at rest, was very close to the 20 percent weighting factor of the 13-mode test and that used in the 1975 Light Duty Federal Test Procedure (LA-4) driving schedule for cars.

9. Vehicle test weight had a consistent, substantial influence on fuel economy for the ten diesel trucks. As expected, the heavier the truck, the higher the fuel consumption and the lower the miles per gallon. A comparison with the 25 gasoline trucks demonstrated the greater fuel economy in the diesel powered truck. Improvements ranged from about 38 percent at 15,000 lbs weight up to 67 percent at 23,000 lbs test weight, the lower and upper limit of comparable test weight represented by the ten diesel and 25 gasoline powered trucks.

10. Run to run repeatability of emissions data for road tests on a given truck varied from 17 percent to 100 percent for HC, 17 percent

to 75 percent for CO, and 9 percent to 45 percent for NO_x. The average variation of emissions for a truck was 46 percent for HC, 38 percent for CO, and 23 percent for NO_x.

I. INTRODUCTION

This is the third in a series of projects designed to investigate exhaust emissions from trucks in actual road operation. The previous projects have dealt with gasoline powered trucks above 6000 lbs gross vehicle weight (GVW). In this project, ten diesel trucks were operated over a closed course through an urban area. The exhaust emissions in mass units and vehicle operational parameters were measured during operation over the course. While diesel trucks currently comprise less than 1.5 percent of the total vehicle population[1]*, they are becoming increasingly important in the total air pollution picture for three reasons.

The first reason is that as the emission standards for automobiles become more stringent, trucks will contribute a larger and larger portion of the total pollution load from vehicles. Second, diesel engines, because of their inherently lower levels of hydrocarbons (HC) and carbon monoxide (CO), are being seriously considered as an alternative to the gasoline engine. Third, the recent fuel shortages and the possibilities of future fuel shortages with higher fuel prices are causing increased interest in the diesel engine because of its superior fuel economy when compared to the gasoline engine.

This study was initiated to provide information on actual over-the-road operation of diesel trucks which could be used in developing national emission impact estimates and to compare road route results with emissions from the ten truck fleet using a chassis version of the Federal heavy duty (HD) gaseous emissions test.

The Emissions Research Department at Southwest Research Institute has conducted a series of studies designed to provide mass emissions from trucks in operation over the road. Since the equipment and procedures used in the current study evolved from these previous projects, and the results of this study will be compared with the previous studies, a brief review of the previous road route emission investigation is in order.

A. Previous Projects

The first study of truck emissions from actual road operation was conducted in 1969 under EPA, then the National Air Pollution Control Administration (NAPCA), Contract PH 86-67-72. Road emissions were obtained from six gasoline powered 1966 to 1969 model year trucks. This was the first project to utilize the constant volume sampler (CVS) to obtain emissions from road operations. These results were compared to the Federal Test Procedure (FTP) for heavy duty gasoline trucks.

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*Numbers in parenthesis refer to references listed in List of References.

Engine rpm, manifold vacuum, throttle position and vehicle speed were also obtained from each test, using strip chart recorders. The results from this series of tests are presented in an interim report for Contract PH 86-67-72 titled "Preliminary Studies of Emissions from Gasoline-Powered Vehicles Above 6,000 lb Gross Vehicle Weight," dated December 1969.

The first gasoline powered truck exhaust emission standards went into effect in 1970.[2] To determine the exhaust emissions from trucks designed to meet these standards, a second road study was initiated for the EPA under Contract EHS 70-113 in 1972. This study obtained road exhaust emissions from 25, 1970-1972 model year trucks, utilizing the techniques developed in the previous project. This project also used a portable data acquisition system to record the engine and vehicle operational parameters on magnetic tape in digital form. The road results were compared to CVS results obtained during the laboratory tests using the nine-mode FTP. The results of this study are contained in Part I of the final report for Contract EHS 70-113, titled "In-Use Heavy Duty Gasoline Truck Emissions (Part 1) - Mass Emissions from Trucks Operated Over a Road Course," dated February 1973 (EPA-460/3-73-002A).

B. Objective

The objective of this study was to acquire exhaust emissions in mass units and vehicle operational data from diesel powered trucks operated over a road course. The exhaust emissions included hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NO_x). The vehicle operational parameters included vehicle speed, engine fuel flow and rpm, and transmission gear position.

C. Approach

The approach to meeting the objectives was similar to the approach used in previous gasoline powered truck studies. Ten diesel trucks were operated over a closed road course including urban and suburban traffic. A constant volume sampler (CVS) was used to obtain an integrated, bagged exhaust sample during operation over the road course. This method allows CO and NO_x levels to be determined from the bag sample. However, HC was obtained by continuously measuring the dilute exhaust stream, since most diesel HC species would condense out when allowed to cool in the sample bag. The emission concentrations were then converted to mass emissions by normal CVS data reduction methods.

The vehicle operational parameters were measured continuously during the road operation by appropriate transducers and the values recorded on magnetic tape for analysis. Carbon dioxide (CO_2) was

continuously measured for use in carbon balance calculated fuel rate to the engine. The percentage of time spent at various increments of speed, rpm and fuel flow were obtained from computer processing of the data tapes. The trucks were also subjected to a chassis version of the 13-mode diesel certification test for reference purposes.

D. Project Reviews

During July 1973, the first two project review and coordination meetings were held at the Emissions Research Laboratory of Southwest Research Institute (SwRI). On July 19, 1973, Mr. LeRoy Higdon of the Procedures Development Branch, EPA, visited the Department of Emissions Research. The two main points discussed at this meeting were truck selection and methods of data collection. The reasons for using fuel flow as the measure of engine power level were discussed. The fact that it is applicable to all diesel trucks and diesel engines, and can be directly related to power level, were the most important reasons. It was agreed that the first truck would be a 1972 Ford 18 foot van with a Model 1100 series Caterpillar engine.

The second meeting was with Mr. John White of the Surveillance Branch, EPA, at the Department of Emissions Research on July 31, 1973. Truck selection was the main topic of this meeting. Mr. White expressed the interest of the EPA in having as many trucks as possible comparable in GVW and type service with the gasoline powered trucks previously operated over the road route, while at the same time needing some information on intercity tractor type vehicles for national impact studies. With these considerations in mind, we proposed that six or seven of the vehicles be intracity service type, with four of these being van or cab and chassis vehicles and the remaining two or three vehicles be intracity tractors. The other three or four vehicles in the fleet of ten would be intercity tractors.

The next project review occurred on October 26, 1973, when Messrs. LeRoy Higdon and Fred Dindoffer of the EPA visited SwRI. The specific items covered included an inspection of the instrumentation to be used on the project, an inspection of the SwRI computer facilities to be used in reducing the data, and a discussion of the future plans for the project. On December 5, 1973, Messrs. John White and John Shelton of EPA visited the Department of Emissions Research to inspect the equipment used in the project and to discuss the project status. As part of the visit, they rode in the truck during a check-out of a fully instrumented truck to observe the equipment in operation.

Messrs. Gary Rossow and LeRoy Higdon visited SwRI on January 17, 1974 to observe the testing of Truck D-2 and to discuss the project status.

A tentative list of trucks to be tested had been discussed earlier with Mr. John White of the Surveillance Branch (EPA) in a telephone call on January 10, 1974 and a subsequent letter on January 14, 1974 from M. Ingalls to Mr. White. This list was also discussed and agreed to during the visit of Messrs. Rossow and Higdon. Mr. Higdon also mentioned that he would be the Project Officer in place of Mr. Bozek.

On March 25 and 26, 1974, Mr. White and Mr. Charles Domke of the EPA visited the Department of Emissions Research to witness the testing of the last truck. The last project review occurred on April 25, 1974, when Mr. Rossow visited SwRI to represent the EPA at an informal meeting of the Emissions Subcommittee of the Engine Manufacturers Association (EMA) to discuss possibilities of further road testing of diesel trucks by the EMA.

II. THE TEST FLEET

In selecting the test fleet, a number of considerations had to be balanced within the constraints of contract level of effort and vehicle availability. The scope of the contract allowed for road and chassis tests on ten trucks. It was important to select ten trucks that would best fulfill the varied needs of the project. For instance, over 96 percent of the diesel trucks sold are over 26,000 lbs GVW [1]; however, the desire to compare diesel and gasoline powered trucks of a normal intracity delivery size, led to the decision to include two trucks under 26,000 lbs GVW in the test fleet.

The remaining eight trucks, all tractors, were split into two weight classes of gross combined weight (GCW). The two classes of 58,000 lbs and 72,000 lbs GCW correspond to a tandem axle semi-trailer pulled by a single rear axle tractor and a tandem rear axle tractor, respectively. The engines included in the fleet were selected on the basis of percentage of sales, with local vehicle availability as a constraint. Four engine manufacturers, Cummins, Detroit Diesel, Mack, and Caterpillar, have accounted for over 96 percent of the truck sales since 1970. Of these, Cummins and Detroit Diesel make up about 70 percent of the truck engine sales.[3] No information is readily available as to percentage sales by individual engine model, therefore, engineering judgement was used to pick the most popular engines, while at the same time covering a wide range in engine size.

Table 1 shows the diesel truck sales by GVW or GCW class and by percentage of market. The percentage of the test fleet in each category has also been included for comparison. As may be noted from Table 1, the fleet had fewer Cummins and Detroit Diesel and more Mack and Caterpillar powered trucks than sales would justify. A closer representation of engine makes could have been made had the fleet been double or triple the size. The percentage of diesel trucks by GVW or GCW was fairly well matched within the limitations of the project.

The test fleet is described in Table 2. Figures 1, 2, and 3 are pictures of the individual trucks comprising the test fleet. The fleet included four 1970, one 1971, one 1972 and four 1973 model trucks. The ten trucks were powered by seven normally aspirated engines, three of which were two-stroke cycle design. The remaining three turbocharged engines were of four-stroke cycle design. All engines had open chamber combustion systems with all but four engines employing unit type injectors. A 40 foot van type semi-trailer with tandem rear axles was rented to house the test equipment and payload for the tractor tests, Trucks D-2 to D-9.

TABLE I. U.S. DIESEL TRUCK SALES, 1970-1972

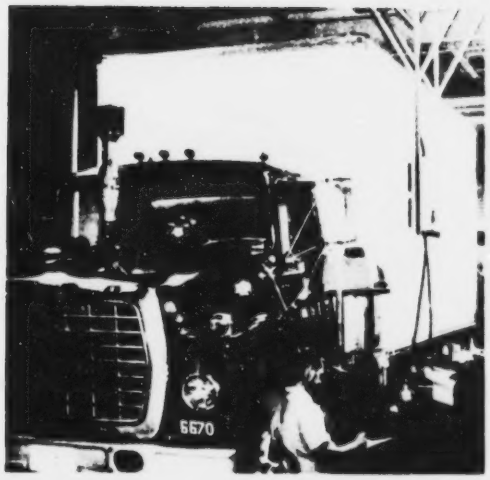
Class	Units and Percent by Weight						Test Fleet %
	1972		1971		1970		
	Units	%	Units	%	Units	%	
0-6,000	0	0	0	0	8	-	-
6,000-10,000	0	0	85	-	417	0.4	-
10,000-14,000	0	0	0	0	0	0	-
14,000-16,000	215	0.2	416	0.4	168	0.2	-
16,000-19,500	41	-	10	-	26	-	10
19,500-26,000	4,789	3.3	5,077	4.5	7,875	7.4	10
26,000-33,000	13,563	9.5	11,269	10.0	11,932	11.3	-
33,000-up	124,481	87.0	96,295	85.1	85,288	80.7	80

Make	Manufacturers Percent Age of Market			
	1972 %	1971 %	1970 %	Test Fleet %
Cummins	33.9	40.3	39.7	30
Det. Diesel	37.2	32.6	28.5	30
Mack	14.8	13.5	15.3	20
Caterpillar	10.5	7.9	8.0	20
IHC	1.9	2.9	2.5	-
Perkins	0.7	1.4	4.0	-
Ford	-	0.1	0.4	-
Other	1.0	1.3	1.6	-

Information taken from "Ward's 1973 Automotive Yearbook".

TABLE 2. DESCRIPTION OF DIESEL TRUCKS OPERATED OVER SAN ANTONIO ROAD ROUTE

Truck No.	Model Year	Chassis Manufacturer	Engine Manufacturer	Engine Model	CID	Cylinder	Type Aspiration	Transmission	Body Style	GVW or GCW	Test Weight	Mileage	Test Start Date
D-1	1972	Ford	Caterpillar	1150	573	V8	Nat	5 spd	Van	24000	18820	33075	12/11/73
D-2	1970	IH	Cummins	V903	903	V8	Nat	15 spd	Tractor	68000	42800	295262	1/17/74
D-3	1971	IH	Detroit Diesel	6-71	426	I6	Norm	10 spd	Tractor	68000	41500	182320	1/22/74
D-4	1970	White	Cummins	NHC-250	855	I6	Nat	10 spd	Tractor	68000	39490	99533	2/12/74
D-5	1973	IH	Caterpillar	1160	636	V8	Nat	5 spd	Tractor	68000	37610	8741	2/20/74
D-6	1973	Mack	Mack	ENDT 676B	672	I6	Turb	10 spd	Tractor	72000	49460	12545	3/1/74
D-7	1973	Mack	Detroit Diesel	8V-71	568	V8	Norm	10 spd	Tractor	72000	50580	12499	3/6/74
D-8	1970	Mack	Mack	ENDT 673B	672	I6	Turb	10 spd	Tractor	68000	41090	294010	3/11/74
D-9	1973	Mack	Cummins	NTC-290	855	I6	Turb	10 spd	Tractor	72000	50980	17487	3/18/74
D-10	1970	Ford	Detroit Diesel	4L-53	212	I4	Norm	5 spd	Van	17000	14430	119775	3/25/74



Truck D-1, 1972 Ford with
Cat. 1150, 24,000 lb GVW

Truck D-2, 1970 IHC with
Cummins V903, 58,000 lb GCW

Truck D-3, 1971 IHC with
Detroit Diesel 6-71, 58,000 lb GCW

Truck D-4, 1970 White with
Cummins NHC-250, 58,000 lb GCW

FIGURE 1. DIESEL TRUCKS D-1 THROUGH D-4
USED ON SAN ANTONIO ROAD ROUTE TESTS

Truck D-5, 1973 IHC with
Cat. 1160, 58,000 lb GCW

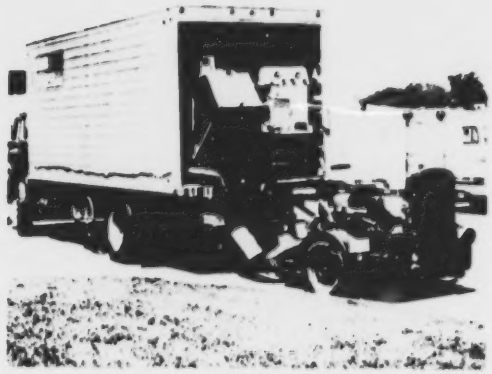
Truck D-6, 1973 Mack with
Mack ENDT 676B, 72,000 lb GCW

Truck D-7, 1973 Mack with
Detroit Diesel 8V-71, 72,000 lb GCW

FIGURE 2. DIESEL TRUCKS D-5 THROUGH D-7
USED FOR SAN ANTONIO ROAD TOUTE TESTS

Truck D-8, 1970 Mack with
Mack ENDT 673B, 58,000 lb GCW

Truck D-9, 1973 Mack with
Cummins NTC 290, 72,000 lb GCW



Truck D-10, 1970 Ford with
Detroit Diesel 4L53, 17,000 lb GCW

FIGURE 3. DIESEL TRUCKS D-8 THROUGH D-10
USED FOR SAN ANTONIO ROAD ROUTE TESTS

III. ROAD TEST EQUIPMENT AND PROCEDURES

This section describes the road route and the procedures, equipment and instrumentation used during the field experiments.

A. Road Route Description

The road course used in this project was the same one laid out by Mr. Bob Olsen (EPA Project Officer of Contract PH 86-67-72) and Mr. Karl Springer, SwRI, several years ago. It was described in detail in Reference 4 as including a variety of truck operation typical of city-suburban delivery.

The intent was merely to develop a road course that involved several different types of driving such as arterial, residential, urban congested (downtown), commercial, and freeway. This course, shown in Figure 4, includes all these types of driving and the course is one that intentionally makes the test truck drive traffic where many other trucks commonly operate. It is 7.24 miles in length and normally requires about 20 minutes to drive. Figure 5 contains three photographs taken from the back of a truck during a test run. The top photo was taken near point 4, the middle photo on the exit of the Interstate Highway near point 7, and the bottom photo was taken between points 7 and 1. The drivers are instructed merely to drive normally, stay with traffic yet not to exceed posted speed limits.

No claim is made about the course as being typical of truck operation in the U. S. or that it is based on driving habit and patterns that have been carefully defined. Several years of effort seem necessary to establish a road driving course that could be agreed to as acceptable and typical of U.S. truck operation. This was specifically pointed out in the proposal so that there is no misunderstanding of the basis of the road course used in this project.

After testing the second Truck, D-2, the city closed the Martin Street entrance to the Interstate Highway for repairs for the duration of the project. This necessitated a detour in the route which increased the route length by about 4 percent (0.31 miles). About half of this increase was in urban driving and half in expressway driving. It was felt this small increase in route length would not affect the final results of the project and using the alternate route was preferable to waiting the estimated six months required for repairs to the expressway entrance.

This supposition was varified when the route average speed and percentage time at various speed intervals from Trucks D-2 and D-3 showed no noticeable changes attributable to the route change. This alternate route was used on Trucks D-3 to D-10.

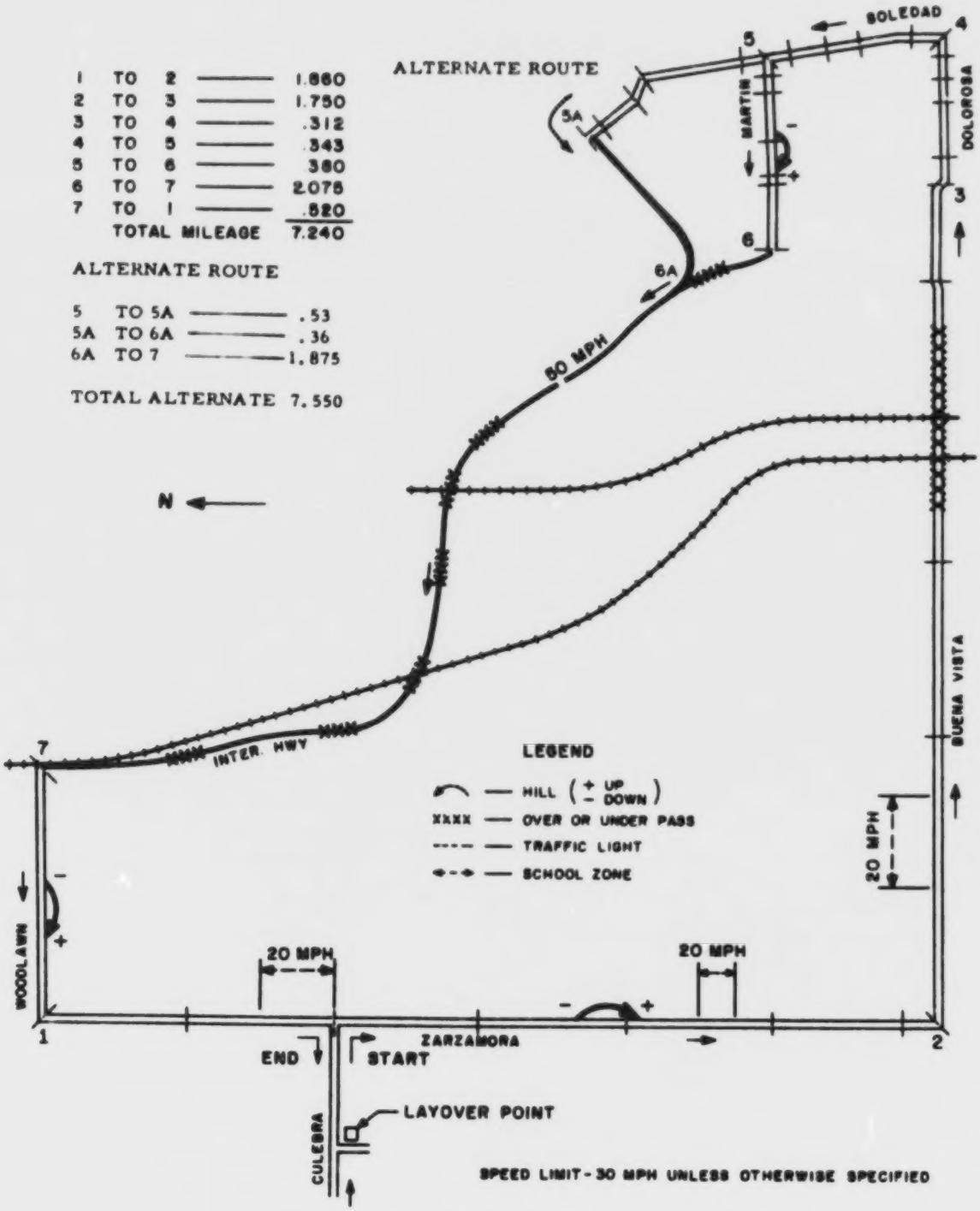


FIGURE 4. SAN ANTONIO ROAD ROUTE

B. Emissions Measurement Equipment

The exhaust emissions from the road tests were collected and sampled using a constant volume sampler (CVS). A schematic of the CVS is shown in Figure 6. This CVS is similar to the CVS design specified in Federal Regulations[5] for light duty certification testing. The sampler utilizes a two speed motor to power the positive displacement blower, giving nominal flow rates of 600 and 900 cubic feet per minute (CFM). The flow range used was determined by engine size; the 600 CFM speed used on the smaller displacement engines and the 900 CFM speed on the larger engines. Figure 7 shows the CVS during calibration and checkout in the laboratory and also installed in the 40 foot semi-trailer used for the diesel tractor tests.

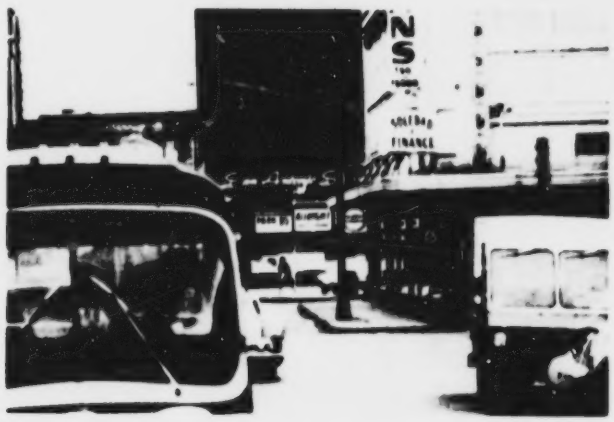
The CVS was calibrated prior to the start of the project using a Meriam laminar flow meter. A propane check, as prescribed in Federal Regulations[5] for light duty certification testing, was performed before each truck was tested on the road.

The CO, CO_2, and NO_x emission levels were obtained from the CVS sample bags using the analytical instrument train shown in the lower photograph of Figure 7. This instrument system was built to light duty certification test specifications, as outlined in Federal Regulations[5].

Briefly, the analytical system consists of Beckman non-dispersive infrared (NDIR) analyzers for CO and CO_2 and a chemiluminescence (CL) analyzer, built by SwRI to original EPA specifications, for NO_x. NO_x is defined as nitric oxide (NO) plus nitrogen dioxide (NO_2) expressed as NO_2. A Beckman Model 400 flame ionization detector (FID) for HC was also included in the system but was not used on this project since it is intended for dilute samples of gasoline engine exhaust.

The instrument train was calibrated monthly during the project using the Emissions Laboratory "Golden Standard" gases. The concentrations of this set of "Golden Standard" gas cylinders were determined by EPA Mobile Source Pollution Laboratory Branch, Ann Arbor, Michigan.

The HC concentrations were not obtained from bag samples, since over half of diesel HC emissions condense when collected by this method. It was, therefore, necessary to continuously sample the dilute exhaust gas stream for HC using a heated FID. The location of the heated FID in the sample collection system is shown in Figure 6. This is the same location as is specified for light duty diesel testing in the Federal Regulations. Figure 7 shows a picture of the heated FID in place on the CVS. The FID was developed and built by SwRI specifically for analysis of diesel exhaust and its response optimized according to SAE Recommended Practice J215. Care was taken to ensure that the sample



Downtown

Expressway

Residential

FIGURE 5. PHOTOS OF THE SAN ANTONIO ROAD ROUTE TAKEN DURING A TEST RUN

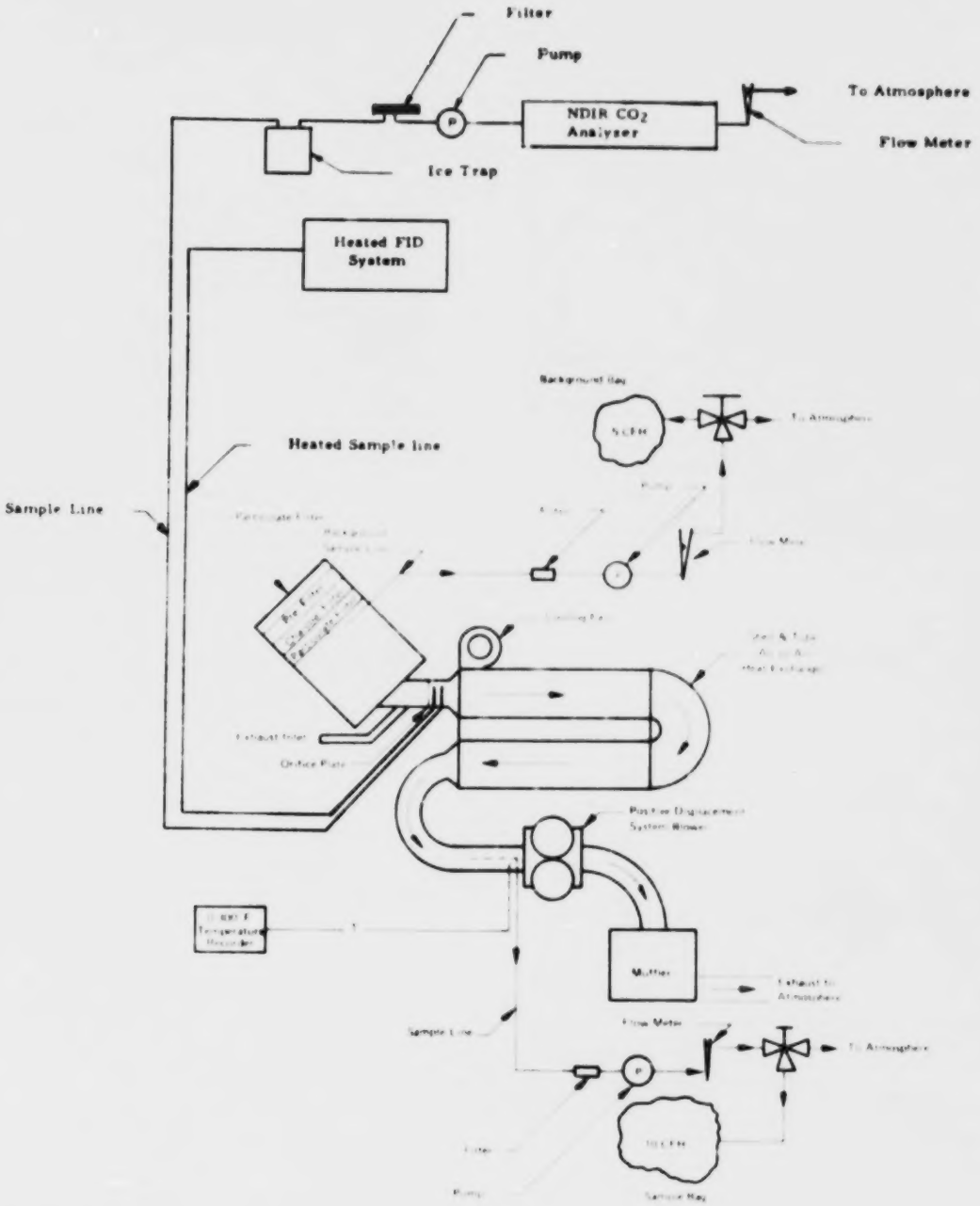
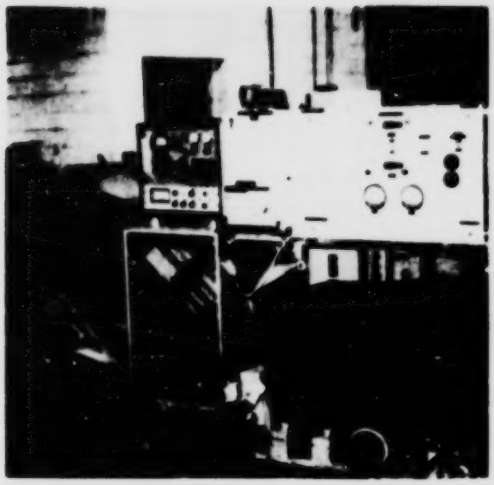
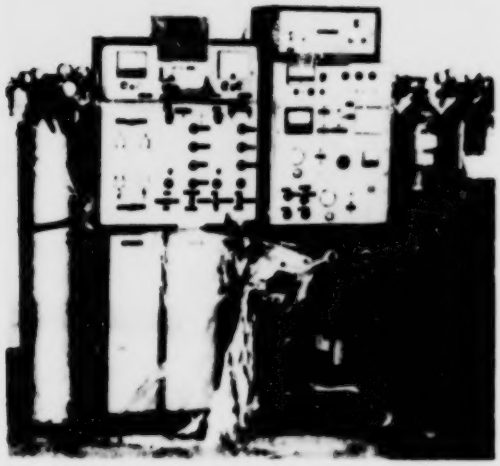


FIGURE 6. SCHEMATIC OF REVISED TRUCK VERSION OF CONSTANT VOLUME SAMPLER



CVS With Continuous
Sampling Heated FID

CVS and Recording Equipment
Installed in 40 Foot Semi-Trailer



Exhaust Emissions Analysis
System for Bag Samples

FIGURE 7. EXHAUST EMISSION SAMPLE COLLECTION AND ANALYTICAL SYSTEM

temperature was maintained at 360°F to prevent inadvertent loss of hydrocarbons. The output signal of the FID was recorded on a strip chart recorder and on magnetic tape. In addition, the signal was fed to an electronic analog integrator, manufactured by Acromag, Inc., having a full scale count rate of 25,000 counts per hour.

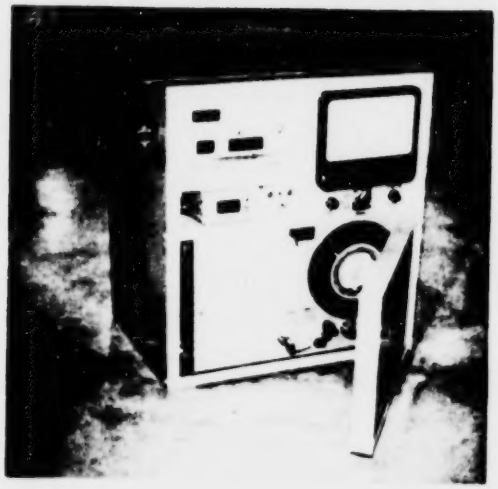
Total fuel used during a road course test was determined by supplying fuel from a preweighed five-gallon can during the test run, then weighing the can again after the run. Because of the hot return fuel into the five-gallon can, it was necessary to install heat exchangers in the fuel lines to maintain the correct fuel temperature to the engine. This total fuel weight for the test run was used to determine emissions in grams per pound of fuel and also fuel economy in miles per gallon.

Power for the CVS, as well as all other equipment and instrumentation carried aboard the trucks during road testing, was supplied by a trailer-mounted generator. For tractor-trailer rigs the generator was secured inside the enclosed 40 foot trailer. For the two smaller vans, the generator was towed behind as shown in Figure 3, lower photo.

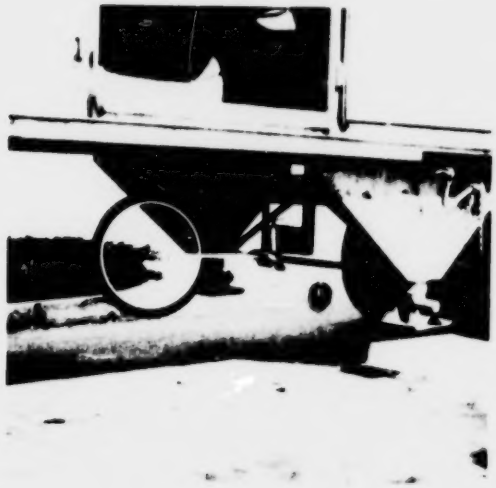
C. Vehicle Operational Parameter Instrumentation

The vehicle operational parameters measured were vehicle speed, engine revolutions per minute, engine fuel flow, and transmission gear position. All data were recorded on magnetic tape using a Metrodata Model DL620 Data Logger and a Digi-Data series 1300 digital magnetic tape unit, together with the necessary signal conditioning equipment. This system acquired, digitized, and recorded the data on one half inch wide magnetic tape. The system, including the signal conditioning equipment, was housed in a single cabinet as shown in Figure 8. The Metrodata system has a 20 channel scan capacity. In this application, the 20 channel scan was repeated continuously at an effective scan rate of approximately 40 channels per second. The channel assignments are listed below.

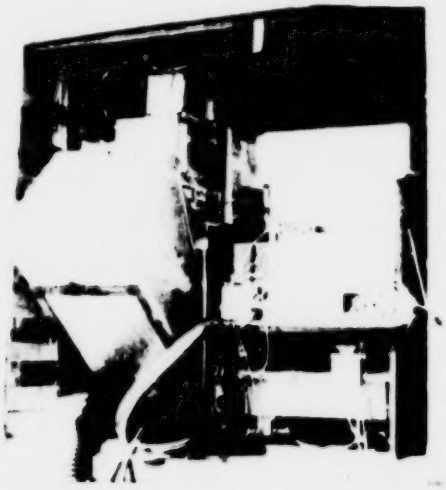
Channel	Item Recorded
1, 2	Time in hours, minutes and seconds from internal clock
3, 7, 11, 15	Engine rpm
4, 8, 12, 16	Vehicle speed
6, 10, 14, 18 (only 17 after Truck D-5)	HC from FID



Signal Conditioning Circuits Data Logger and Magnetic Tape Recorder Installed in Cabinet



Fifth Wheel in Place Under Semi-Trailer



CVS, HC and CO_2 Analyzers And Recording Equipment in 18 Foot Van

FIGURE 8. ROAD ROUTE INSTRUMENTATION AND RECORDING EQUIPMENT

Channel	Item Recorded
9 (Truck D-1) 5 (Truck D-2 to D-10)	CO_2 Analyzer
13	CVS blower inlet temperature
19	Transmission gear position

Thus engine rpm and vehicle speed were sampled approximately eight times per second; while CO_2, HC, and CVS inlet temperature were sampled approximately twice a second. As a backup to the Metrodata system, vehicle speed, engine rpm, HC concentration and CO_2 concentration were recorded on strip chart recorders. Vehicle speed was measured using a Labeco fifth-wheel mounted under the bed of the semi-trailer (or truck body for Trucks D-1 and D-10) as shown in Figure 8. Engine speed was measured using a Weston Model 750 DC tachometer generator. Transmission gear position was fed into the data acquisition system manually by means of a thumbwheel counter.

In this project, fuel flow rate was to be used as an indication of power level. Originally it was planned to use a Flo-tron flowmeter to measure fuel flow rate. The Flo-tron has been used successfully for years to measure diesel engine net fuel flow on engine test stands. The problem with using the Flo-tron on the road involves the recirculating tank required in the system because of return fuel flow from the engine injectors (refer to Figure 9 below). This tank makes use of a float controlled valve to measure the net fuel flow to the engine. Any change in the float level from vibration, shock, or change in truck attitude on the road would be interpreted as a change in fuel flow. Nevertheless,

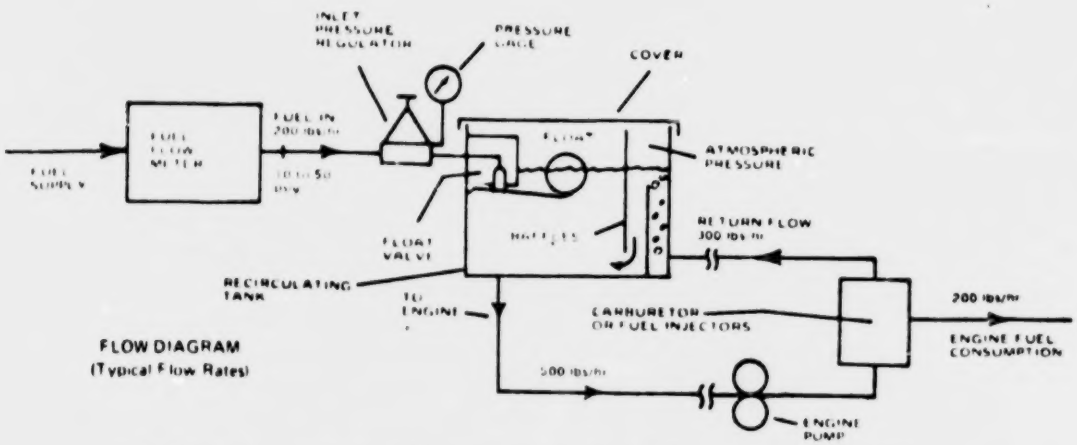


FIGURE 9. SCHEMATIC OF FLO-TRON FLOWMETER WITH RECIRCULATING TANK

the ability to have a direct mass flow reading for fuel was attractive enough to warrant trying to use the Flo-tron system on the road.

A gimbal housing was devised for the tank to enable it to maintain a true vertical orientation. The volume of the tank was reduced to make small changes in tank level (i.e., fuel flow) translate into larger float movements. The tank surface area was reduced to prevent sloshing. Various vibration isolation schemes were employed. The float actuating arm and float needle valve were modified to require a larger float movement for the same change in fuel flow. After about two and one half months of experimentation, it was concluded that the Flo-tron with the recirculating tank was not satisfactory for over-the-road use. The tank could be made fairly insensitive to vibration, shock, and changes in truck attitude but only with an unacceptable increase in response time.

A new approach was then tried. For a diesel engine, over 95 percent of the carbon in the fuel occurs in the exhaust as CO_2. Based on rapid, accurate measurement of the exhaust CO_2, it was felt that fuel flow could be calculated by conventional carbon balance technique. A CO_2 analyzer was mounted in the truck with appropriate vibration isolation. A test drive showed the CO_2 analyzer as installed to be insensitive to vibration, shock, and changes in truck attitude and to have excellent response. When the calculated fuel flow from the CO_2 measurement was compared to the fuel used as determined from weighing the test fuel tank before and after the test run, the two methods were found to agree within 10 percent. It was, therefore, decided to use CO_2 to calculate the instantaneous fuel rate. The CO_2 analyzer can be seen suspended under the data recording equipment in the bottom picture of Figure 8. The CO_2 sample was obtained from the same location as the HC sample, the diluted CVS flow prior to entry into the CVS heat exchanger. In actual practice, the fuel rate was determined using both the HC and CO_2 continuous dilute readings. Only CO, of negligible significance in the carbon balance calculations of fuel rate, was not measured on a continuous basis.

D. Test Procedure

The general test procedure used was the same for all trucks tested, although each truck presented a unique set of problems in the preparation phase. Such items as finding space in the engine compartment for the engine tachometer, adapting the fuel measurement system to the truck, and operating the instrumentation with both positive and negative ground electrical system, required a new set of solutions to equipment installation problems for each truck.

1. Test Preparation

While driving the truck from the supplier to SwRI, each truck was checked for driveability and safe operation by one of the test technicians. The truck was also weighed on a certified public truck scale to obtain empty weight. Upon arrival at SwRI, the engine tachometer was installed, the necessary valves and heat exchangers installed in the fuel lines to allow operation from the test fuel can, the exhaust system extended (if necessary) and connected to the CVS inlet with flexible stainless steel tubing, and the required CVS blower speed determined.

Prior to connecting the CVS to the exhaust system, a propane check was run on the CVS using the onboard continuous FID system to determine propane concentration, as well as the bag HC analytical system. By doing this, the entire continuous FID system was checked as well as the CVS calibration. The continuous CO_2 analyzer calibration was checked with two "golden standard" gases before beginning tests on each truck. The engine tach and fifth wheel were also calibrated prior to testing each truck. The truck was then loaded with barrels of water and large concrete blocks to give a total weight equal to empty weight plus one half payload. Payload was defined as GVW for the truck or GCW for tractor-trailer minus the empty weight. These weights are listed in Table 2.

2. Conduct of Test

The truck was driven from the laboratory to the road route layover point (about a 20 minute drive) with the CVS in operation to ensure the CVS was at operating temperature prior to beginning road tests. At the layover point, the CO_2 and HC analyzers were zeroed and spanned, the fifth wheel lowered into position and the CVS readied for the test run (counters zeroed, sample bags connected, filters changed, etc.). Barometric pressure and wet and dry bulb temperature were also recorded.

The truck was then driven over the road course. At the start of the course the engine fuel supply was shifted from the truck tanks to the test fuel can and exhaust sampling started. At the end of the course, the fuel supply was switched back to the truck tanks and the exhaust sampling stopped. Upon return to the layover point, the HC analyzer was spanned, the background bag HC read on the continuous FID, and the pertinent CVS data recorded. The sample fuel can was replaced by a full can and capped for return to the laboratory. The truck was then readied for the next test, repeating the above procedures. Normally nine test drives around the course were made for each truck, with three drivers each driving three times.

3. Data Reduction

For the exhaust emissions, the mass of each emission type per test was calculated using the formula for light duty CVS tests found in the Federal Register[5]. A computer program was written to process the emissions data, expressing the results in grams/test, grams/minute, grams/pound of fuel, and grams/mile. The computer program also printed out a summary of the results from each test as well as the average results for all tests on a given truck.

The data recorded on magnetic tape, was processed at the SwRI Computer Laboratory on an H-P 2100 system. The tape was first "dumped", printing the first ten records (there are ten 20 channel data scans per record) of each test, counting the number of data records for each test, and checking that the records were capable of being read correctly by the computer (parity check). If the data on the tape appeared to be correct, the tape was reprocessed using a program to convert the readings to engineering units, calculate average engine speed, vehicle speed, and fuel flow rate and determine the percentage of time spent at discrete increments of these parameters.

If the data on the magnetic tape was not usable, the truck was rerun over the road course to obtain good data, if at all possible. Where this was not possible, the strip chart recordings were manually read, the data transferred to punch cards, and then computer processed.

4. Test Fuel

Table 3 lists inspection data for EM-195-F, the special diesel emissions fuel, Type 2-D, specified in the Federal Register[5] for gaseous emissions test purposes. This fuel was used exclusively for both road and laboratory experiments.

TABLE 3. INSPECTION DATA FOR DIESEL TEST FUEL

Fuel Type	2-D
Fuel Code	EM-195-F
Property	
Gravity, °API	34.5
Sulfur, % by wt.	0.3
Aromatics, %	37.6
Olefins, %	-
Distillation, °F	
Initial Boiling Point	386
End Point	658
10%	436
20%	461
30%	481
40%	498
50%	514
60%	530
70%	546
80%	564
90%	605
95%	648
Recovery, %	99.0
Residue, %	1.0
Calculated Cetane No.	46.7

IV. LABORATORY TEST EQUIPMENT AND PROCEDURE

This section describes the instrumentation equipment and procedures used during the laboratory tests of each truck.

A. The Chassis 13-Mode Test

The 1974 HD diesel gaseous emissions test, known as the 13-mode test[6], is described in Reference 5 as a stationary engine test. Prior to its adoption by the EPA, an alternative chassis dynamometer procedure had been published by the California Air Resources Board (CARB).[7] The 39 minute long chassis procedure is a speed-load map of 13 modes, at three minutes per mode. In addition to CO and NO by NDIR (according to SAE recommended practice J-177) and HC by heated FID (according to SAE recommended practice J-215), air rate must be measured continuously (according to SAE recommended practice J-244). Net fuel consumption of the engine is also measured to enable the use of manufacturer's curves for inlet fuel rate and engine flywheel horsepower to set power points. The procedure starts with low idle, then 2, 25, 50, 75 and 100 percent load at intermediate speed followed by low idle. Then speed is increased to rated speed at 100 percent load with decreases to 75, 50, 25 and 2 percent. Another idle is then run. Intermediate speed is defined as peak torque speed or 60 percent of rated speed, whichever is higher.

The major difference between the stationary test used for certification and the chassis alternative is the procedure used to determine the engine operating points at 25, 50 and 75 percent of power and the actual power output at 100 percent. The stationary 13-mode procedure uses measured power output at the flywheel to determine the cycle weighted power for division into the product of emission concentration times density of emission times flow of exhaust to get brake specific emission rate. For engines installed in a chassis, there is no convenient way to measure power output at the flywheel. But, it is convenient to measure the net fuel rate to the engine which can be used to determine power given suitable curves from the manufacturer.

For all of the trucks subjected to this test, a curve of fuel rate versus flywheel power output, from no load to maximum power output at rated and intermediate speed was available. The procedure was to measure maximum fuel rate by operating at maximum power output at each specified speed. Then the flywheel power output for that fuel rate was read from the curve. The part power fuel rate settings were then obtained from the curve at 75, 50 and 25 percent of the maximum power reading. The vehicle was then operated at these fuel rates during the test and the power used in the calculations was that read from the fuel-power curves.

B. Facility and Equipment

All chassis 13-mode tests were conducted in the laboratory of the Department of Emissions Research. This laboratory is equipped for controlled-environment operations with the most modern means of emissions sampling and analysis. The tandem axle chassis dynamometer used for the chassis 13-mode tests is housed in one of the laboratory high bay areas. There is ample room in this area to accommodate all instruments and the largest truck in the fleet. Several photos in Figure 10 show trucks on test in the high bay area. The approximate 100 tons of air conditioning and heating are capable of maintaining the laboratory high bay area at 75°F over the entire range of outside ambient temperature experienced in the area. Some summer humidity control is obtained with atmospheric water removal in the air conditioning system, but no other humidity control is attempted.

The raw exhaust emission concentrations were measured using the instrumentation cart shown in the upper right photograph of Figure 10. These instruments provided a continuous reading of the emissions in the raw exhaust. CO and NO concentrations were obtained using Beckman Model 315A and B NDIR analyzers. HC concentrations were obtained using a heated FID of SwRI design. The oven containing the sample handling system and the burner tip for the FID can be seen in the middle left photo of Figure 10. The electronics for the HC analyzer are in the cart with the other emission analyzers located on the other side of the wall behind the oven. All emission concentrations were recorded on the six-pen recorder seen in the upper right view of Figure 10.

Engine airflow was measured with an NBS calibrated Meriam laminar flow meter, shown in the middle right photograph of Figure 10. Fuel flow was obtained from a Flo-Tron mass flow meter shown in the lower photo of Figure 10. Engine speed in revolutions per minute was determined using the normal engine tachometer takeoff shaft driving 60 tooth wheel, magnetic pick-up, and electronic event counter.

C. Test Procedure

In preparation for the 13-mode test, the truck was placed on the dynamometer, the laminar airflow meter installed and the test fuel measurement system installed. The tests were run with no inertia weight connected to the dynamometer. The test point settings in terms of fuel flow were determined as explained earlier in the section describing the 13-mode test. The truck was then run at the specified speed and fuel flow for each mode and the dynamometer horsepower recorded. The chassis 13-mode emission test was then run using engine speed and dynamometer horsepower to set each mode. Fuel rate was observed and if not correct, loading on the vehicle was adjusted as needed. Airflow and fuel flow data were recorded for each mode in addition to the emission concentration.

Barometric pressure and wet/dry bulb temperature readings were taken before, after and midway through the test.

Brake specific emissions were then obtained using the calculation procedure specified in the Federal Register [5] for heavy duty diesel engine emission certification tests. Although the NO emissions were corrected to the standard humidity, NO was not corrected to inlet air temperature. The correction formula as published in the Federal Register at the start of this program was under review, and we were advised not to use the correction formula until a final determination had been made.

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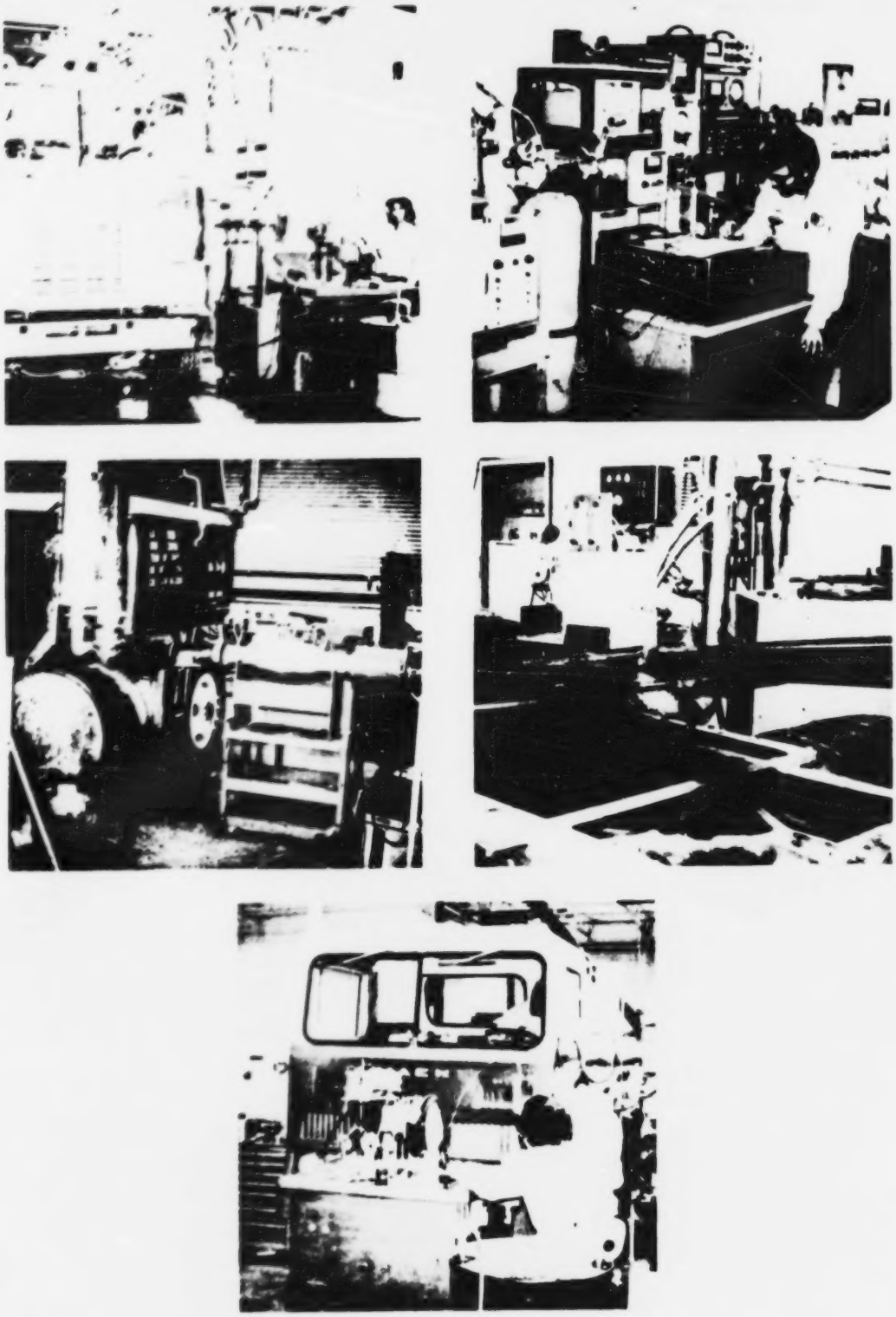


FIGURE 1. CHASSIS 1/3-MODEL TEST INSTRUMENTATION

V. EMISSION RESULTS

This section presents the results of the field and laboratory experiments.

A. Road Route Emission Results

The average results of the road tests for all trucks as well as the average emissions by weight class are tabulated in Table 4. For each truck the values shown are the average of the results for six to nine road course tests, depending on the truck. The results are expressed in grams per minute, grams per pound of fuel, and grams per mile for the three contaminants measured: HC, CO, and NO_x. Also listed in Table 4 are the maximum and minimum values of the individual truck average emissions. Appendix A contains the emissions for each individual run for each of the trucks Please refer to this more extensive listing of results for indications of run-to-run repeatability, etc.

Examining the results shown in Table 4, it is evident that there is a wide range of emission rates for any emission type. HC emissions varied by a factor of six to seven between the maximum and minimum truck averages; CO emissions had a ratio of approximately ten between the maximum and minimum, while NO_x (as NO_2) varied by a factor of approximately two to three between the average maximum and minimum. From the averages by truck weight class, it appears that the emissions in terms of grams/lb of fuel may be a function of truck weight. However, if the emissions in grams per pound of fuel are plotted as a function of vehicle test weight, there is no clearly discernible relationship for any of the emissions.

Another way of presenting the road emission results is to rank-order from low to high the various rates for the ten trucks. Table 4 indicates that the Mack ENDT 676B and Detroit Diesel 6-71 engines have the lowest HC emission rates of the ten vehicles regardless of method of expression. The highest HC levels were from the other Mack, the ENDT 673B and the Caterpillar 1150 engine. The rank order in Table 5 indicates the Caterpillar 1150 and Mack ENDT 673B are lowest in CO while the Detroit Diesel 6-71 is consistently and substantially higher in CO than the remaining trucks. In terms of NO_x g/min and g/mi, the lowest engine was the Caterpillar 1150 and the highest two engines the Detroit Diesel 8V-71 and Mack ENDT 673B.

From a cursory examination of the grams of CO per pound of fuel column of Table 6, there appears to be a relationship of CO to engine make. An analysis of variance was, therefore, done on the emissions (expressed by all three methods) with engine make as the independent variable. While sample size was very small for such

TABLE 4. DIESEL TRUCK EXHAUST EMISSIONS FROM SAN ANTONIO ROAD ROUTE

Truck No.	Engine Manufacturer	Engine Model	Vehicle Test Weight	Average Run Duration	Emissions									Fuel Miles Per Gallon
					Grams/Minute			Grams/Pound of Fuel			Grams/Mile			
					HC	CO	NO_x	HC	CO	NO_x	HC	CO	NO_x	
D-1	Caterpillar	1150	18820	22.57	1.96	2.39	3.09	6.97	8.42	10.98	6.09	7.40	9.61	8.09
D-2	Cummins	V903	42800	22.55	1.24	4.27	5.99	2.56	8.93	12.56	3.85	13.29	18.64	4.75
D-3	Detroit Diesel	6-71	41500	23.76	0.47	25.06	5.20	1.13	60.30	12.58	1.46	78.46	16.33	5.45
D-4	Cummins NHC	250	39490	23.25	0.82	4.51	4.80	1.71	9.46	10.07	2.53	13.94	14.81	4.82
D-5	Caterpillar	1160	37610	23.24	1.30	3.65	4.37	3.26	9.13	10.95	3.98	11.20	13.41	5.80
D-6	Mack ENDT	676B	49460	23.58	0.47	4.32	6.59	0.98	9.04	13.75	1.46	13.48	20.52	4.74
D-7	Detroit Diesel	8V-71	50580	22.98	0.90	8.76	9.25	1.57	15.25	16.06	2.75	26.64	28.09	4.04
D-8	Mack ENDT	673B	41090	22.92	2.97	3.41	9.30	6.71	7.71	20.97	9.01	10.36	28.16	5.27
D-9	Cummins NTC	290	50980	22.49	0.99	6.58	8.60	1.58	10.48	13.70	2.95	19.60	25.63	3.78
D-10	Detroit Diesel	4L-53	14430	23.49	0.98	13.00	3.89	3.55	47.57	14.08	3.06	40.86	12.16	8.20
			Average	23.10	1.21	7.59	6.11	3.01	18.63	13.57	3.72	23.52	18.74	5.49
			Maximum	23.58	2.97	25.06	9.30	6.97	60.30	20.97	9.01	78.46	28.16	8.20
			Minimum	22.49	0.47	2.39	3.09	0.98	7.71	10.07	1.46	7.40	9.61	3.78
Avg. for GVW 25,000 lbs & under				23.03	1.47	7.70	3.49	5.26	28.00	12.53	4.58	24.13	10.98	8.15
Avg. for GCW 58,000 lbs				23.14	1.36	8.18	5.93	3.08	19.11	13.43	4.17	25.45	18.27	5.22
Avg. for GCW 72,000 lbs				23.02	0.77	6.55	8.15	1.38	11.59	14.50	2.39	19.91	24.75	4.19
Avg. for GCW 58,000 and 72,000 lbs				23.11	1.15	7.56	6.77	2.44	16.29	13.83	3.51	23.37	20.70	4.83

TABLE 5. RANK ORDER OF S.A.R.R. HC EMISSION RATES BY ENGINE MAKE AND MODEL LOWEST TO HIGHEST

	Grams/Minute	Grams/lbs of Fuel	Grams/Mile
1	Mack ENDT 676B (0.47)*	Mack ENDT 676B (0.98)*	Mack ENDT 676B (1.46)*
2	Detroit Diesel 6-71 (0.47)	Detroit Diesel 6-71 (1.13)	Detroit Diesel 6-71 (1.46)
3	Cummins NHC-250 (0.82)	Detroit Diesel 8V-71 (1.57)	Cummins NHC-250 (2.53)
4	Detroit Diesel 8V-71 (0.90)	Cummins NTC-290 (1.58)	Detroit Diesel 8V-71 (2.75)
5	Detroit Diesel 4L-53 (0.98)	Cummins NHC-250 (1.71)	Cummins NTC-290 (2.95)
6	Cummins NTC-290 (0.99)	Cummins V903 (2.58)	Detroit Diesel 4L-53 (3.06)
7	Cummins V903 (1.24)	Caterpillar 1160 (3.26)	Cummins V903 (3.85)
8	Caterpillar 1160 (1.30)	Detroit Diesel 4L-53 (3.35)	Caterpillar 1160 (3.98)
9	Caterpillar 1150 (1.96)	Mack ENDT 673B (6.71)	Caterpillar 1150 (6.09)
10	Mack ENDT 673B (2.97)	Caterpillar 1150 (9.37)	Mack ENDT 673B (9.91)

*Numbers in parentheses are emission levels.

TABLE 6. RANK ORDER OF S.A.R.R. CO EMISSION RATES BY ENGINE MAKE AND MODEL LOWEST TO HIGHEST

	Grams/Minute	Grams/lb of Fuel	Grams/Mile
1	Caterpillar 1150 (2.39)*	Mack ENDT 673B (7.71)*	Caterpillar 1150 (7.40)*
2	Mack ENDT 673B (3.41)	Caterpillar 1150 (8.42)	Mack ENDT 673B (10.36)
3	Caterpillar 1160 (3.65)	Cummins V903 (8.93)	Caterpillar 1160 (11.20)
4	Cummins V903 (4.27)	Mack ENDT 676B (9.04)	Cummins V903 (13.29)
5	Mack ENDT 676B (4.32)	Caterpillar 1160 (9.13)	Mack ENDT 676B (13.48)
6	Cummins NHC-250 (4.51)	Cummins NHC-250 (9.46)	Cummins NHC-250 (13.94)
7	Cummins NTC-290 (6.58)	Cummins NTC-290 (10.48)	Cummins NTC-290 (19.60)
8	Detroit Diesel 8V-71 (8.76)	Detroit Diesel 8V-71 (15.25)	Detroit Diesel 8V-71 (26.64)
9	Detroit Diesel 4L-53 (13.00)	Detroit Diesel 4L-53 (47.57)	Detroit Diesel 4L-53 (40.86)
10	Detroit Diesel 6-71 (25.06)	Detroit Diesel 6-71 (60.30)	Detroit Diesel 6-71 (78.46)

*Numbers in parentheses are emission levels.

TABLE 7. RANK ORDER OF S.A.R.R. NO_x EMISSION RATES BY ENGINE MAKE AND MODEL LOWEST TO HIGHEST

	Grams/Minute	Grams/lb of Fuel	Grams/Mile
1	Caterpillar 1150 (3.09)*	Cummins NHC-250 (10.07)*	Caterpillar 1150 (9.61)*
2	Detroit Diesel 4L-53 (3.89)	Caterpillar 1160 (10.95)	Detroit Diesel 4L-53 (12.16)
3	Caterpillar 1160 (4.37)	Caterpillar 1150 (10.98)	Caterpillar 1160 (13.41)
4	Cummins NHC-250 (4.80)	Cummins V903 (12.56)	Cummins NHC-250 (14.81)
5	Detroit Diesel 6-71 (5.20)	Detroit Diesel 6-71 (12.58)	Detroit Diesel 6-71 (16.33)
6	Cummins V903 (5.99)	Cummins NTC-290 (13.70)	Cummins V903 (18.64)
7	Mack ENDT 676B (6.59)	Mack ENDT 676B (13.75)	Mack ENDT 676B (20.52)
8	Cummins NTC-290 (8.60)	Detroit Diesel 4L-53 (14.08)	Cummins NTC-290 (25.63)
9	Detroit Diesel 8V-71 (9.25)	Detroit Diesel 8V-71 (16.06)	Detroit Diesel 8V-71 (28.09)
10	Mack ENDT 673B (9.30)	Mack ENDT 673B (20.97)	Mack ENDT 673B (28.16)

*Numbers in parentheses are emission levels.

analysis, it did indicate that CO was related to engine make at the 0.1 significance level for HC and NO_x.

Since diesel and gasoline powered engines are often in direct competition with each other as vehicle power sources, it should be of interest to compare the diesel road emissions with those from gasoline powered trucks. As mentioned previously in this report, 25 gasoline powered trucks were operated over the San Antonio Road Route in 1972 under EPA Contract EHS 70-113. The details of that study are contained in the final report for that project[8]. The diesel road emissions in grams/lb of fuel from the present study are compared with the results of the 25 truck gasoline engine study in Figures 11 and 12 by weight and type category. The three weight and type groups used in this comparison were those used in the gasoline engine study. However, there were no diesel trucks tested with GVW's of 10,000 lb or less and the maximum GCW of the diesels was much higher than the maximum gasoline powered truck GCW. Only in the intermediate size are the comparisons on Figures 11 and 12 considered valid. Then, only two diesel trucks are compared to the 16 gasoline and the strength of such a comparison may be questionable.

In the discussion of emission results so far, the preferred expression of the emission levels has been grams per pound of fuel burned. This is because this expression is compatible with the idea of useful work, brake specific emission rate, for a given engine. It is not engine size dependent necessarily. Thus Figures 11 and 12 were included to preserve direct continuity with the gasoline truck project. However, since there is a known difference in fuel economy, and hence pounds of fuel used, between the diesel and gasoline engines for the same amount of work, a comparison using grams per ton mile to express emissions may prove to be more useful. Tables 8 and 9 list the average grams per ton mile; Table 8 for the group of ten diesel-powered trucks, and Table 9 for the 25 gasoline trucks. The test weight for each truck is listed as is the average grams per mile HC, CO, and NO_x for each vehicle as tested over the San Antonio Road Route. The g/ton mile values, the most accurate method of expression for two competing systems such as these, is the product of the g/mi and 2000 lb divided by the test weight. By this method, each vehicle's contribution of HC, CO and NO_x is based on the truck's true social value, namely, the ability to move goods and services by rubber tired vehicles over streets and roads.

Listed in Table 10 are the average diesel and gasoline g/ton-mile results based on the ten diesel and 25 gasoline trucks listed in Tables 8 and 9.

TABLE 8. EMISSION RATE FROM TEN DIESEL TRUCK FLEET
In Grams Per Ton Mile

Truck No.	Test Weight	Avg. g/mi			Avg. g/ton-mile			Fuel Economy (mi/gal)
		HC	CO	NO_x	HC	CO	NO_x	
1	18,820	6.09	7.40	9.61	0.647	0.786	1.021	8.09
2	42,800	3.85	13.29	18.64	0.180	0.617	0.871	4.75
3	41,500	1.46	78.46	16.33	0.070	3.78	0.787	5.45
4	39,490	2.53	13.94	14.81	0.128	0.706	0.750	4.82
5	37,610	3.98	11.20	13.41	0.212	0.596	0.713	5.80
6	49,460	1.46	13.48	20.52	0.059	0.545	0.830	4.74
7	50,580	2.75	26.64	28.09	0.109	1.053	1.111	4.04
8	41,090	9.01	10.36	28.16	0.439	0.504	1.371	5.27
9	50,980	2.95	19.60	25.63	0.116	0.769	1.005	3.78
10	14,430	3.06	40.86	12.16	0.424	5.663	1.685	8.20

TABLE 9. EMISSION RATE FROM 25 GASOLINE TRUCK FLEET
In Grams Per Ton Mile

Truck No.	Test Weight	Avg. g/mi			Avg. g/ton-mile			Fuel Economy (mi/gal)
		HC	CO	NO_x	HC	CO	NO_x	
1	11,945	9.06	131	13.52	1.517	21.934	2.264	6.95
2	13,605	7.14	122	8.84	1.050	17.935	1.300	6.06
3	14,530	12.33	170	8.28	1.697	23.400	1.140	6.59
4	8,585	4.91	74	16.04	1.144	17.193	3.737	7.43
5	13,580	8.06	165	8.61	1.187	24.300	1.268	6.27
6	17,645	16.67	137	15.69	1.889	15.528	1.778	5.60
7	14,010	18.05	288	3.84	2.577	41.113	0.548	6.20
8	19,150	22.91	189	12.94	2.393	19.739	1.351	5.36
9	17,600	16.78	124	13.07	1.907	14.091	1.485	5.94
10	14,870	13.28	144	12.54	1.786	19.368	1.687	6.11
11	17,325	16.64	147	11.58	1.921	16.970	1.337	5.97
12	16,430	16.89	214	7.00	2.056	26.050	0.852	5.62
13	13,275	11.18	136	9.78	1.684	20.490	1.473	7.21
14	17,625	12.35	154	6.97	1.401	17.475	0.791	5.66
15	8,510	3.22	90	10.83	0.757	21.105	2.545	7.18
16	8,240	4.48	32	11.39	1.087	7.670	2.765	6.71
17	21,380	32.05	363	7.72	2.998	33.957	0.722	4.10
18	23,080	40.99	379	11.02	3.552	32.842	0.955	4.01
19	23,075	21.98	163	18.50	1.905	14.128	1.603	4.54
20	20,875	22.31	161	14.91	2.137	15.425	1.429	4.81
21	22,290	31.30	542	5.68	2.808	48.632	0.510	3.75
22	17,165	24.59	273	7.91	2.865	31.809	0.922	4.76
23	12,735	16.96	473	2.01	2.664	74.283	0.316	4.98
24	20,880	14.86	144	10.51	1.423	13.793	1.007	4.85
25	17,065	27.99	199	12.73	3.280	23.323	1.492	5.40

TABLE 10. AVERAGE EMISSION RATES FOR TEN DIESEL AND 25 GASOLINE TRUCKS

Test Fleet	Grams of Emission per Ton-Mile		
	HC	CO	NO_x
Diesel (10 truck)	0.238	1.162	1.014
Max/Min	0.647/0.070	5.663/0.504	1.685/0.713
Gasoline (25 truck)	1.987	24.502	1.411
Max/Min	3.552/0.757	74.283/7.67	3.737/0.316
Ratio of $\frac{\text{25 Gasoline Avg.}}{\text{10 Diesel Avg.}}$	8.3	21.1	1.4

The ratio of the average 25 gasoline to the average ten diesel grams per ton mile is of interest in that on a g/ton-mi basis, gasoline HC was 8.3 times diesel, gasoline CO was 21.1 times diesel and NO_x from the gasoline fleet was 1.4 times that of the diesel. The max/min values showed a substantial variability of results, typically ten to one within both fleets. Two exceptions were the diesel NO_x range of about two to one and the gasoline HC which was close to seven to one, thus, the difficulty of generalization unless the fleet is large enough. It is uncertain if either fleet, in this case, was large enough or completely representative of vehicles in service as to population and usage.

The ratio of g/ton mi of gasoline to diesel is quite interesting, however, and agrees very well with light duty diesel and gasoline studies of the Mercedes 220 passenger car[9, 10]. These matched experiments of a car powered by a four-cylinder gasoline and a similar Mercedes powered by a four-cylinder diesel engine, by the Federal light duty transient test procedure, showed the diesel to have about one-tenth the hydrocarbons, one twenty-fifth the CO and about half the NO_x as its gasoline counterpart. In this case, the measurements were based on grams per mile, the best expression of an automobile's contribution to air pollutants. The social value, in this case, is the ability to transport an average of 1.5 to 1.8 people, an insignificant payload-weight relative to the vehicle weight.

Tables 8 and 9 also list the average g/mi emission rates for the two fleets and the tendency by some will be to utilize these results in comparisons. The g/mi values are considered useful only in the case of estimating emissions impact in that it is one way to determine, using miles driven per year by a certain category or class of vehicles, the tons of pollutant per year attributable to a given source. Grams per pound of fuel is the other emission factor of use in such estimates when some idea of total fuel consumption by the class or source breakdown is known. If not, another way is to use vehicle miles traveled and a fuel consumption rate, miles per gallon, representative of the

type driving encountered. One such set of fuel economy values are included in the data of this report, for the ten diesels, and the previous 25 gasoline trucks similarly tested.

Only under circumstances of national or regional air pollution impact estimation should g/mi emission rates be used. Direct comparison of large vehicles to small vehicles in heavy duty use, whether gasoline or diesel, is not advised because this method of expression does not include the social value of the truck. This fact was recognized some years ago in developing test procedures for gasoline and diesel engines in heavy duty use based on power output of the engine, i.e., the brake specific emission rate. In summary, g/lb fuel is considered a good means of expression for a given truck or engine or even a group of similarly powered trucks, such as all gasoline or all diesel, at least for the purposes of this project. Dividing emission rate in lbs/hour by the amount of fuel consumed penalizes the engine which burns the least fuel. In the case of diesel compared to gasoline, there is a substantial difference in efficiency; and therefore, such comparisons, such as the one made in Figures 11 and 12, must be considered carefully and with the difference in the amount of fuel necessary to do a given job kept in mind.

One final note regarding use of the fleet values in national emissions impact. Sales weighted values should be used in terms of weight as well as make and model of engine. Such weighting factors, not easily determined, should be applied to the individual trucks or where replicated (in gasoline fleet) the average of the sub-groups for a more accurate assessment. With regard to the expression of test limits for HD vehicles in combination, i.e., $HC+NO_x$, no attempt in the road data has been made to do so either for diesel or gasoline. Such comparisons of diesel and gasoline would require use of "severity factors" in terms of the effect of each emission on the environment, including emissions not considered here such as particulates and sulfur compounds. A cursory examination of information from various sources[11, 12] indicates that no reliable, universally accepted, "severity factors" have been established.

B. Laboratory Emission Results

The results of the chassis dynamometer 13-mode tests are listed in Table 11. In most cases, the average is based on two replicate runs but sometimes three runs were performed. In general, the run-to-run repeatability was quite satisfactory. Appendix B contains the computer print-out sheets for each run. These print-outs list the modal emissions, air flow, fuel flow, and flywheel power used in calculating the brake specific emission rates.

TABLE 11. DIESEL TRUCK EXHAUST EMISSIONS
FROM CHASSIS VERSION OF FEDERAL 1974 HD 13-MODE TEST

Truck No.	Engine and Model	Test Date	Run No.	Brake Specific Emission Rate, g/bhp-hr HC	CO	NO_2	HC+NO_2
D-1	Caterpillar 1150	12/26/73	3	2.95	6.62	6.61	9.56
			4	3.28	6.36	6.66	9.93
			Avg.	3.11	6.49	6.63	9.74
D-2	Cummins V903	1/21/74	1	0.17	2.50	4.58	4.74
			2	0.21	2.61	4.66	4.87
			3	0.21	2.52	4.71	4.91
			Avg.	0.19	2.54	4.65	4.84
D-3	Detroit Diesel 6-71	1/28/74	2	0.33	12.22	11.20	11.53
			3	0.30	12.34	10.75	11.05
			Avg.	0.32	12.28	10.97	11.29
D-4	Cummins NHC-250	2/14/74	2	0.24	5.34	6.70	6.94
			3	0.23	5.25	6.74	6.97
			Avg.	0.24	5.30	6.72	6.96
D-5	Caterpillar 1160	2/22/74	1	1.66	6.10	7.10	8.76
			2	1.95	6.28	6.06	8.01
			3	1.93	6.22	6.14	8.07
			Avg.	1.84	6.20	6.43	8.28
D-6	Mack ENDT 676B	3/12/74	2	0.55	1.59	9.51	10.05
			3	0.54	1.59	9.55	10.09
			Avg.	0.54	1.59	9.53	10.07
D-7	Detroit Diesel 8V-71	3/13/74	1	0.75	7.39	10.26	11.01
			2	0.75	7.55	11.13	11.88
			Avg.	0.75	7.47	10.69	11.45
D-8	Mack ENDT 673B	3/14/74	1	2.36	2.94	19.55	21.91
			2	2.43	2.94	18.77	21.20
			Avg.	2.39	2.94	19.16	21.55
D-9	Cummins NTC-290	3/15/74	1	0.40	2.24	12.45	12.85
			2	0.36	2.37	13.38	13.74
			Avg.	0.38	2.31	12.92	13.30
D-10	Detroit Diesel 4L-53	3/28/74	1	3.09	8.86	11.23	14.33
			2	3.11	9.35	11.32	14.43
			Avg.	3.10	9.10	11.28	14.38
			AVERAGE	1.29	5.62	9.90	11.19

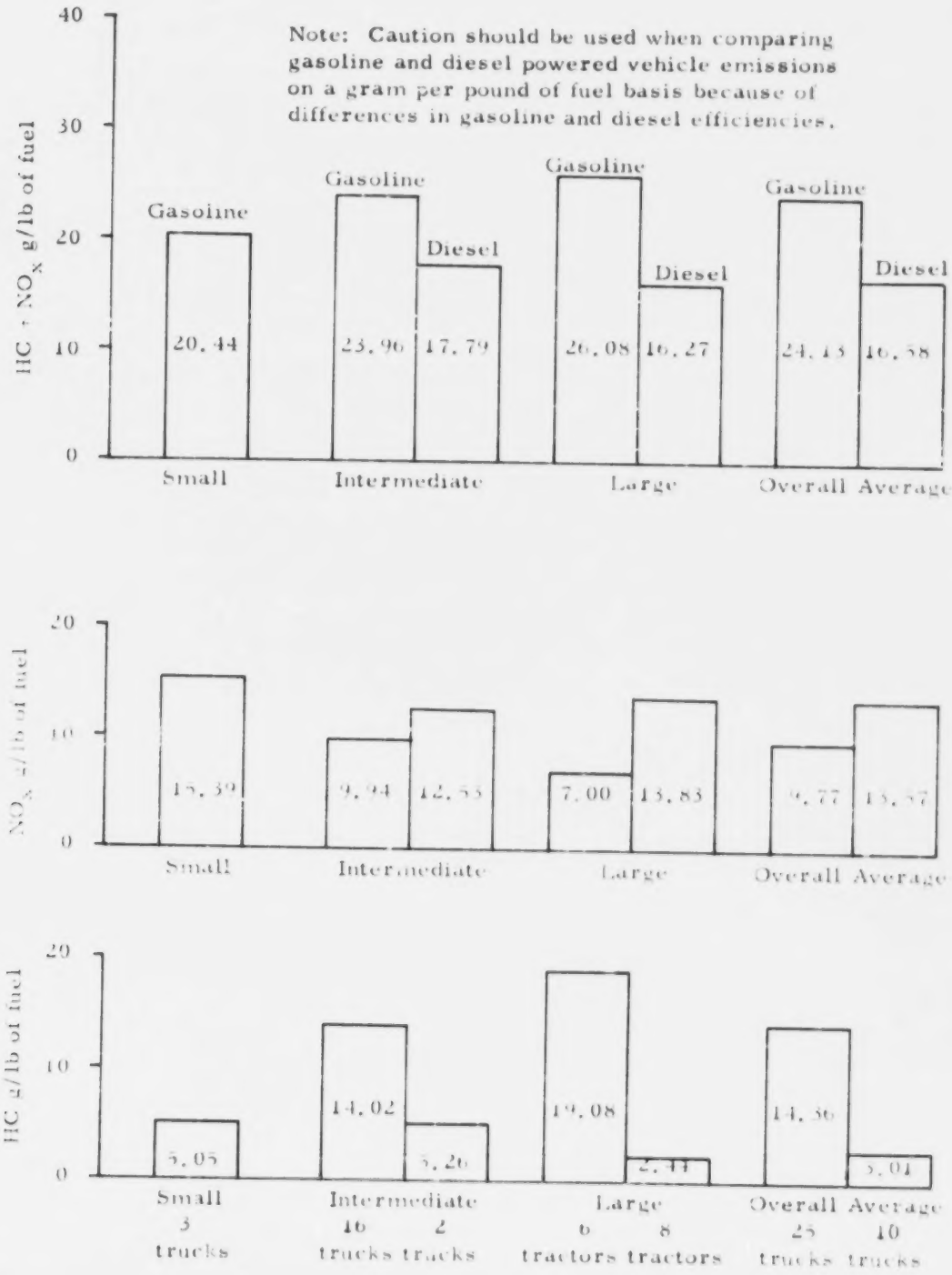


FIGURE 11. COMPARISON OF SARR HC AND NO_x EMISSIONS IN GRAMS PER POUND OF FUEL FOR DIESEL AND GASOLINE TRUCKS

Note: Caution should be used when comparing gasoline and diesel powered vehicle emissions on a gram per pound of fuel basis because of differences in gasoline and diesel efficiencies.

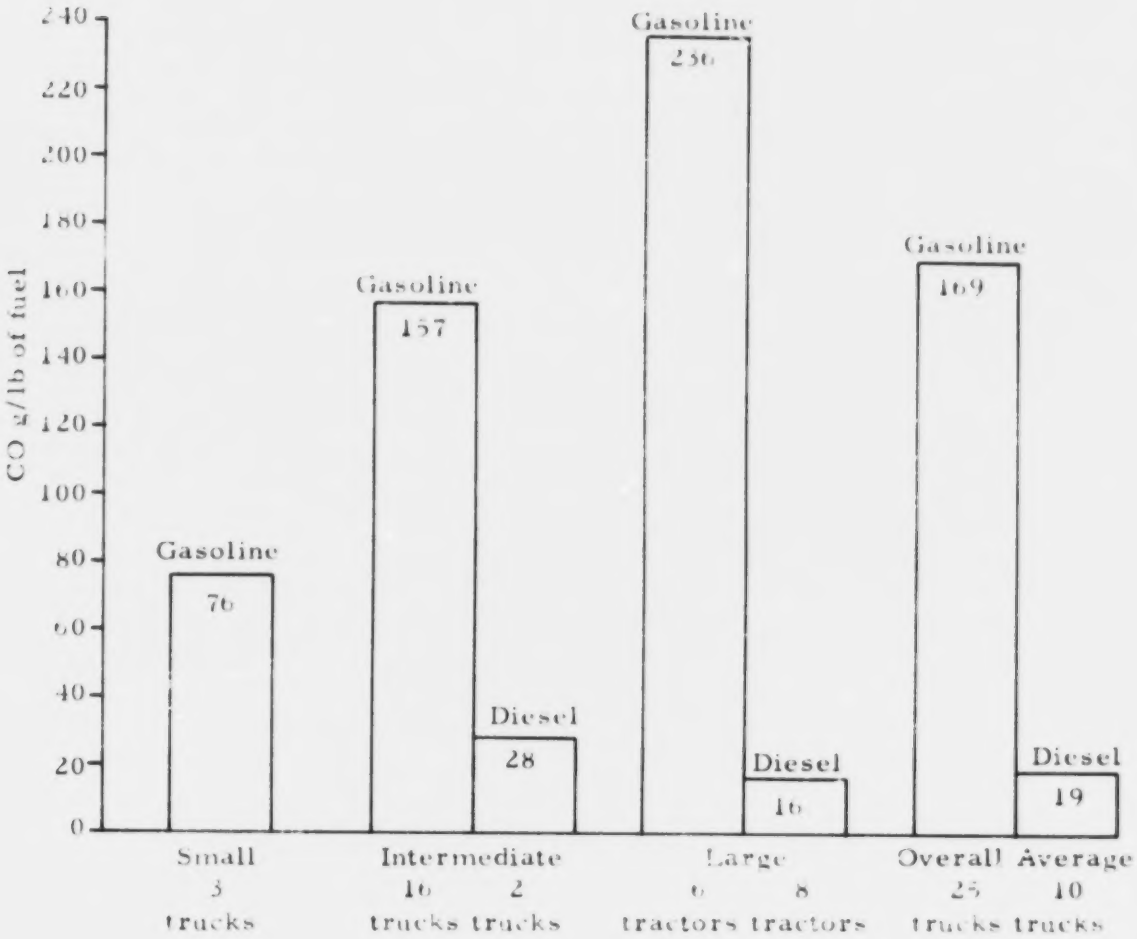


FIGURE 12. COMPARISON OF SARR CO EMISSIONS IN GRAMS PER POUND OF FUEL FOR DIESEL AND GASOLINE TRUCKS

Before making any comparisons to the Federal and California emission limits by the 13-mode test, it must be recalled that each truck test was with the engine installed in the truck chassis and was conducted by a chassis dynamometer version of the FTP. The FTP specifies a stationary operated engine with direct flywheel power output and longer mode times, among other minor, unknown differences.

Figures 13 and 14 are bar chart representations of the average brake specific emission values given in Table 11. The 1974 Federal and 1975 and 1977 California standards for $HC+NO_x$ are shown on Figure 13 for a relative comparison. The CO standard, intended for both gasoline HD and diesel engines, is shown above the vertical scale of the CO histogram and, therefore, only listed for information. It should be noted that the Federal and California standards are used here only as a reference and not to indicate that any particular engine would or would not meet the standards.

The most important bar chart is shown on the upper half of Figure 13 since $HC+NO_2$ is the emission value of concern from the diesel per the 13-mode test. Except for one truck, number D-8 powered by a Mack ENDT 673B engine, all trucks were below the reference level of 16 grams $HC+NO_2$. Recall that all trucks were 1970 to 1973 model year and that nationwide emission regulations did not become effective until 1974. The specific Mack ENDT 673 powered truck, No. D-8, was a 1970 model. CO emission rate, on the bottom half of Figure 13, ranged from about 2 to 12 g/bhp-hr and are of no consequence relative to published standards for this contaminant from HD engines. The CO limits are intended for gasoline powered trucks above 6,000 lb GVW and accordingly, are much higher than the diesel.

Figure 14 shows the individual HC and NO as NO_2 g/bhp-hr average rates for each of the ten trucks. Some engines were relatively high on both while most engines were moderate to high NO_2 and low HC as compared to other engines in the fleet. Characteristically, the HC represents a small fraction of the combined $HC+NO_2$ value, roughly 0.2 to a maximum of 3.0 g/bhp-hr. A few of the engines exhibited higher than average HC, namely, the Caterpillar 1150 and 1160 engines (Trucks D-1 and D-5), the Mack ENDT 673B (Truck D-8), and the Detroit Diesel 41-53 (Truck D-10).

As with the road results, it is possible to rank order the chassis 13-mode results from low to high. Table 12 lists the HC, CO and NO_x results in g/bhp-hr for all ten trucks. These are best compared to the g/lb fuel road route results given in Tables 5 to 7. While the rank-ordering of the 13-mode tests, in general, gives approximately the same relative order as the road tests, there is not an exact one-to-one

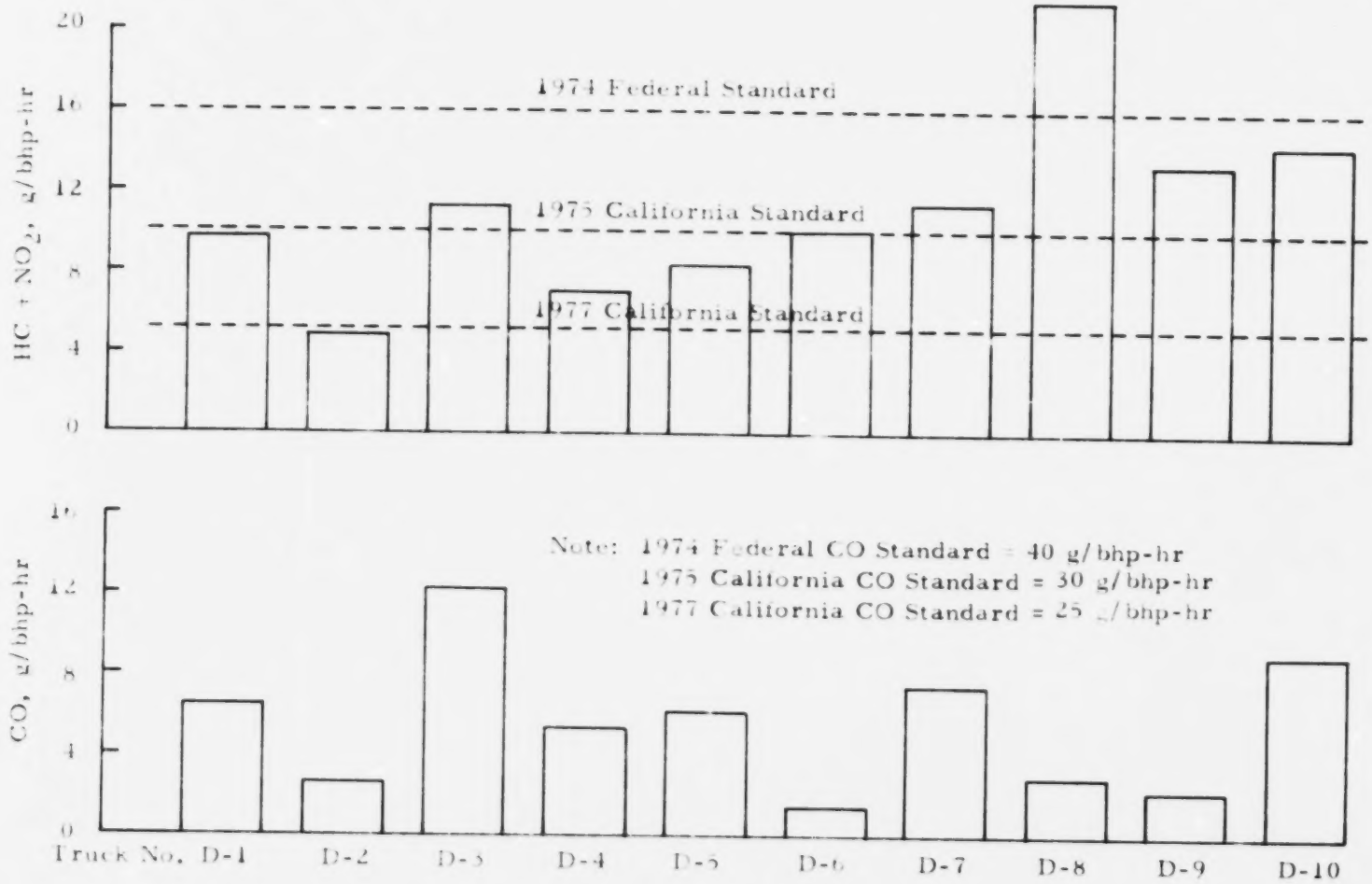


FIGURE 13. DIESEL TRUCK EXHAUST EMISSIONS FROM CHASSIS 13-MODE TEST

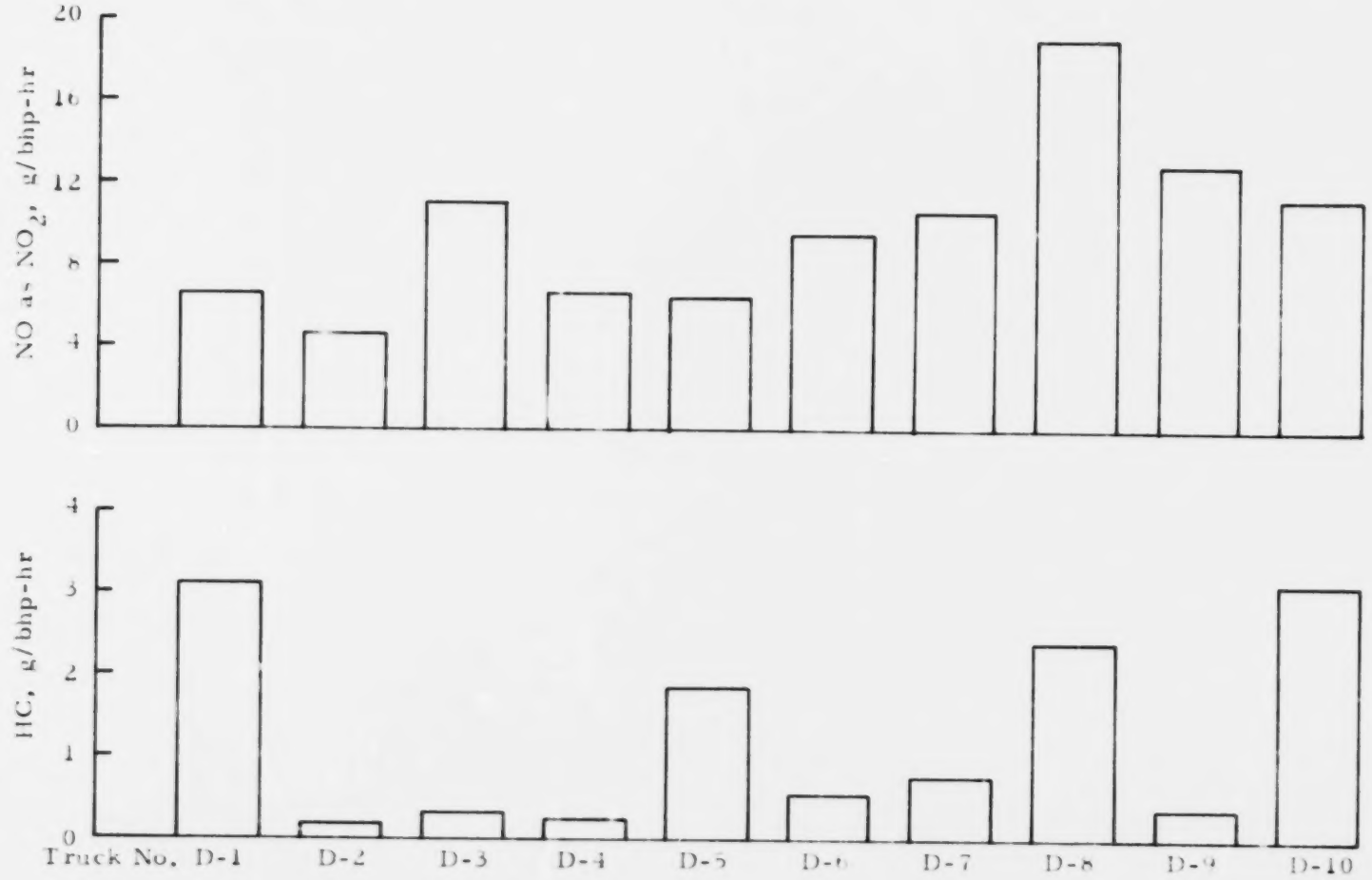


FIGURE 14. DIESEL TRUCK EXHAUST EMISSIONS FROM CHASSIS 13-MODE TEST

TABLE 12. RANK ORDER OF CHASSIS 13-MODE EMISSION TEST RESULTS, g/bhp-hr
Lowest to Highest

	HC	CO	NO_x
1	Cummins V903 (0.19)*	Mack ENDT 676B (1.59)*	Cummins V903 (4.65)*
2	Cummins NHC-250 (0.24)	Cummins NTC 290 (2.31)	Caterpillar 1160 (6.44)
3	Detroit Diesel 6-71 (0.32)	Cummins V903 (2.54)	Caterpillar 1150 (6.63)
4	Cummins NTC-290 (0.38)	Mack ENDT 673B (2.94)	Cummins NHC-250 (6.72)
5	Mack ENDT 676B (0.54)	Cummins NHC-250 (5.30)	Mack ENDT 676B (9.53)
6	Detroit Diesel 8V-71 (0.75)	Caterpillar 1160 (6.20)	Detroit Diesel 8V-71 (10.69)
7	Caterpillar 1160 (1.84)	Caterpillar 1150 (6.49)	Detroit Diesel 6-71 (10.97)
8	Mack ENDT 673B (2.39)	Detroit Diesel 8V-71 (7.47)	Detroit Diesel 4L-53 (11.28)
9	Detroit Diesel 4L-53 (3.10)	Detroit Diesel 4L-53 (9.10)	Cummins NTC-290 (12.92)
10	Caterpillar 1150 (3.11)	Detroit Diesel 6-71 (12.28)	Mack ENDT 673B (19.16)

*Values in parentheses are average emission rates, g/bhp-hr.

correlation. In the case of the road testing, the exhaust emission is expressed in terms of heat input, pounds of fuel. The 13-mode test is based on the power output and for a given engine, the correlation between heat input and work output is excellent. Therefore, the extent to which the road g/bhp-hr and the laboratory 13-mode results agree (or disagree) trendwise is more a function of the test conditions and procedure. For a given engine, it is not dependent on method of expression.

EPA has, by virtue of a previous project at SwRI on HD diesel powered vehicles[13], a more extensive 13-mode data base. These chassis version 13-mode tests were made on 59 trucks and buses using the same methods and procedures. In fact, two of the trucks in this project were identical to those in the previous diesel work. Trucks D-2 and D-8 were identical to units 415 and 060122 in Reference 13. The 59 vehicle fleet contained more engine models than were tested during this study and not all engine models in this study were in the 59-vehicle fleet. Nevertheless, it is instructive to compare the average results from the two studies as is done in Table 13 below.

TABLE 13. COMPARISON OF CHASSIS 13-MODE TEST RESULTS FROM 59-VEHICLE SURVEILLANCE FLEET[13] AND TEN TRUCK ROAD ROUTE FLEET
(All Diesel Powered)

	Average Fleet Emissions, g/bhp-hr			
	BSHC	BSCO	$BSNO_2$	BSHC+$BSNO_2$
59 Trucks & Buses from Surveillance Fleet[13]	1.75	6.34	11.14	12.88
10 Trucks from Road Route Fleet	1.29	5.62	9.90	11.19

$BSNO_2$ for the 59-vehicle fleet was based on observed NO by NDIR uncorrected for humidity since there was no correction formula available during the project for diesel NO correction.

Where chassis 13-mode data was available from the surveillance study on engine models tested during this project, the data were compared. In general, the results from this project were similar to the results from the surveillance project. For the two specific trucks tested in both projects, the results were also very close with better than expected agreement even though over 30 months had lapsed between tests.

To facilitate comparison of the chassis 13-mode results and the road course results for the ten diesels in this project, additional calculations were added to the 13-mode computer program so that the

weighted emission results could be expressed in terms of grams per pound of fuel burned. There are several ways to do this, but the simplest is to compute a composite brake specific fuel consumption (BSFC) for the cycle. The composite emission results in g/bhp-hr divided by the BSFC in pounds of fuel per bhp-hr results in the weighted composite emissions in grams per pound of fuel.

Table 14 summarizes the chassis 13-mode results in terms of grams per pound of fuel used. Additionally, it shows the road emission results in the same units and the ratio of the results from the two types of tests. Also included in the table is the composite BSFC for the 13-mode tests. Since the composite BSFC for all trucks, except D-10, was within a narrow range, using grams per pound of fuel would not be expected to change the rank-order materially.

To determine if there was any correlation between the road route and the chassis 13-mode tests, the emission results from each type test in grams per pound of fuel were plotted against each other as shown by Figures 15 to 17. These graphs, using individual average truck data from Table 14, illustrate the fairly good agreement for HC and CO and the poorer agreement between NO_x by the road and NO_2 by the laboratory. While there is a great deal of scatter in all the plots about the line of perfect, one-to-one correlation, they do show a general relationship. This is particularly true for HC and NO_x. Only HC and CO appear to result in anything near a one-to-one correlation and this was, of course, indicated by the average ratio of 13-mode to road route g/lb fuel listed on Table 14. Note the HC and CO ratio was 0.88 for the ten-truck fleet. This ratio, less than one, means that overall the 13-mode test produced slightly less HC and CO than the road operation did.

There are many possible reasons for this difference, if indeed it may be considered a difference. It may be more instructive to consider the scatter of points on Figures 15 and 16 and their divergence from the line of perfect correlation. Truck D-2 had a HC ratio of 0.17, which in itself is very poor correlation; while at the other extreme, Truck D-10 had a HC ratio of 1.63. For these two vehicles, the grams of HC per pound of fuel by the road test was not at all close to that by the 13-mode test and depending on engine and vehicle could be grossly higher or lower.

Much the same general comments may be made for CO. Overall, CO had good agreement but for some of the trucks it was quite poor. For example, Truck D-10, powered by the Detroit Diesel 4L-53 engine, had a CO ratio of 0.36; while Truck D-1, the other van truck powered by a Caterpillar 1150 engine, had a CO ratio of 1.67. It is interesting to note the HC to CO ratio reversal for Truck D-10.

TABLE 14. COMPARISON OF ROAD TEST AND CHASSIS 13-MODE TEST RESULTS IN GRAMS PER POUND OF FUEL

Truck No.	Road Route Tests, g/lb of fuel				13-Mode Tests, g/lb of fuel				13-Mode BSFC	Ratio of 13-Mode/Road Route			
	HC	CO	NO_x	$HC+NO_x$	HC	CO	NO_2	$HC+NO_2$		HC	CO	NO_x	$HC+NO_x$
D-1	6.97	8.42	10.98	17.95	6.73	14.03	14.34	21.07	0.463	0.97	1.67	1.31	1.17
D-2	2.58	8.93	12.56	15.14	0.44	5.78	10.57	11.01	0.440	0.17	0.64	0.84	0.73
D-3	1.13	60.30	12.58	13.71	0.72	27.55	24.62	25.34	0.446	0.64	0.46	1.96	1.85
D-4	1.71	9.46	10.07	11.78	0.57	12.55	15.92	16.49	0.422	0.33	1.32	1.58	1.40
D-5	3.26	9.13	10.95	14.21	3.95	13.30	13.81	17.76	0.465	1.21	1.46	1.26	1.25
D-6	0.98	9.04	13.75	14.73	1.33	3.90	23.38	24.71	0.408	1.36	0.43	1.70	1.68
D-7	1.57	15.25	16.06	17.63	1.66	16.52	23.66	25.32	0.453	1.06	1.08	1.47	1.44
D-8	6.71	7.71	20.97	27.68	5.82	7.15	46.59	52.41	0.412	0.87	0.93	2.22	1.89
D-9	1.58	10.48	13.70	15.28	0.84	5.09	28.51	29.35	0.453	0.53	0.49	2.08	1.92
D-10	3.55	47.57	14.08	17.63	5.81	17.05	21.12	26.93	0.535	1.63	0.36	1.50	1.53
Avg.	3.01	18.63	13.57	16.57	2.79	12.29	22.25	25.04	0.450	0.88	0.88	1.61	1.49

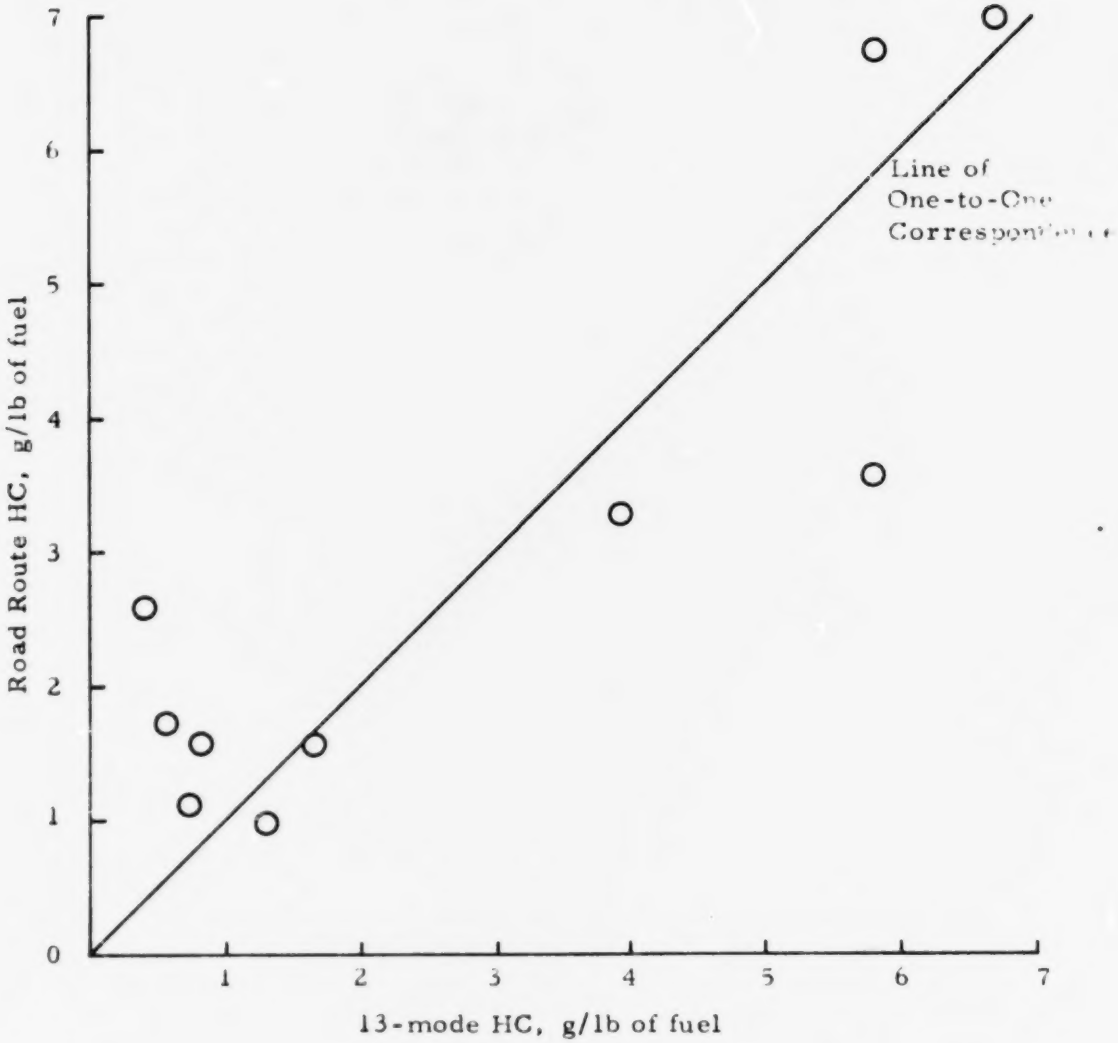


FIGURE 15. RELATIONSHIP BETWEEN ROAD ROUTE AND 13-MODE HC EMISSIONS IN GRAMS PER POUND OF FUEL

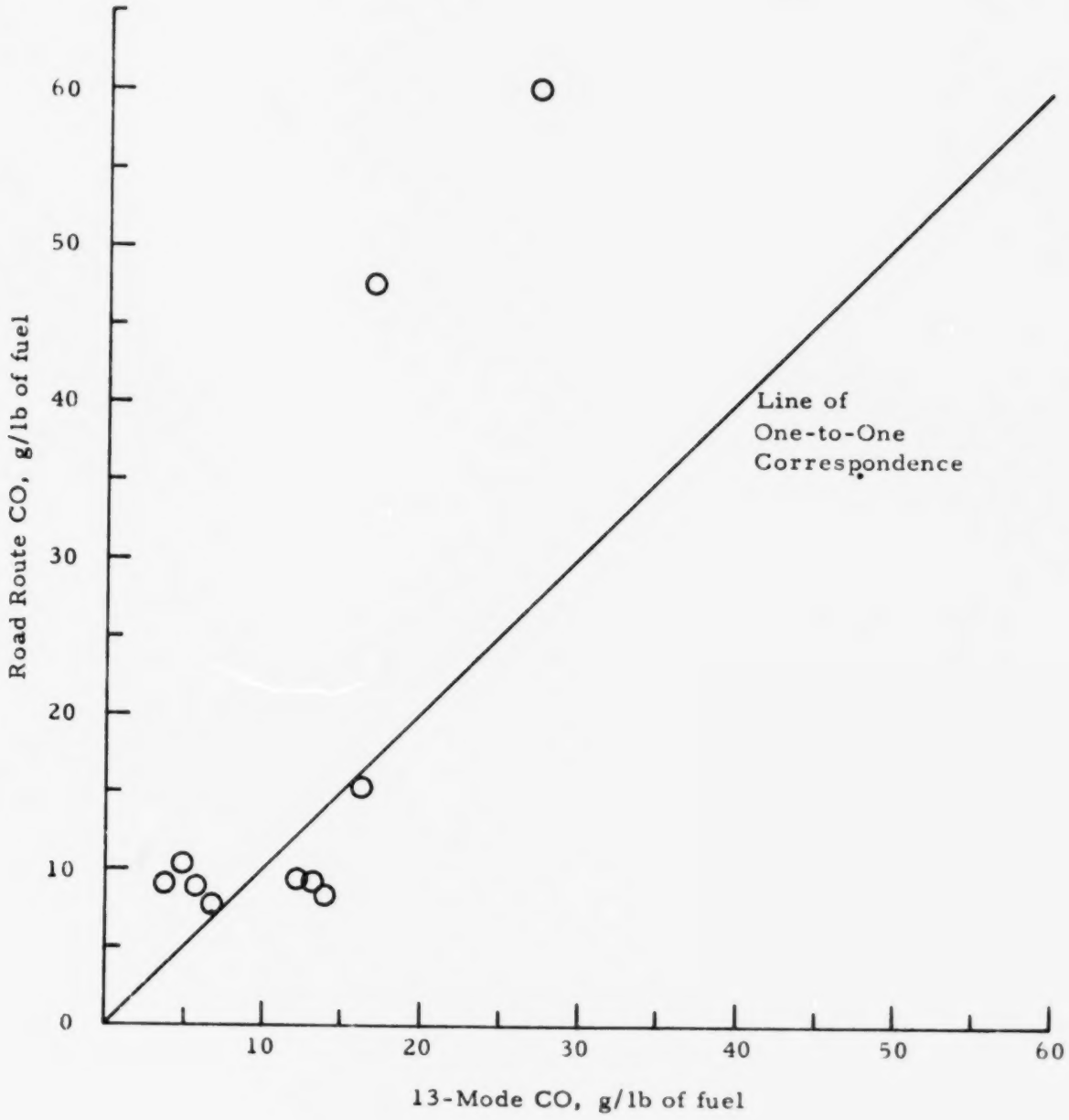


FIGURE 16. RELATIONSHIP BETWEEN ROAD ROUTE AND 13-MODE CO EMISSIONS IN GRAMS PER POUND OF FUEL

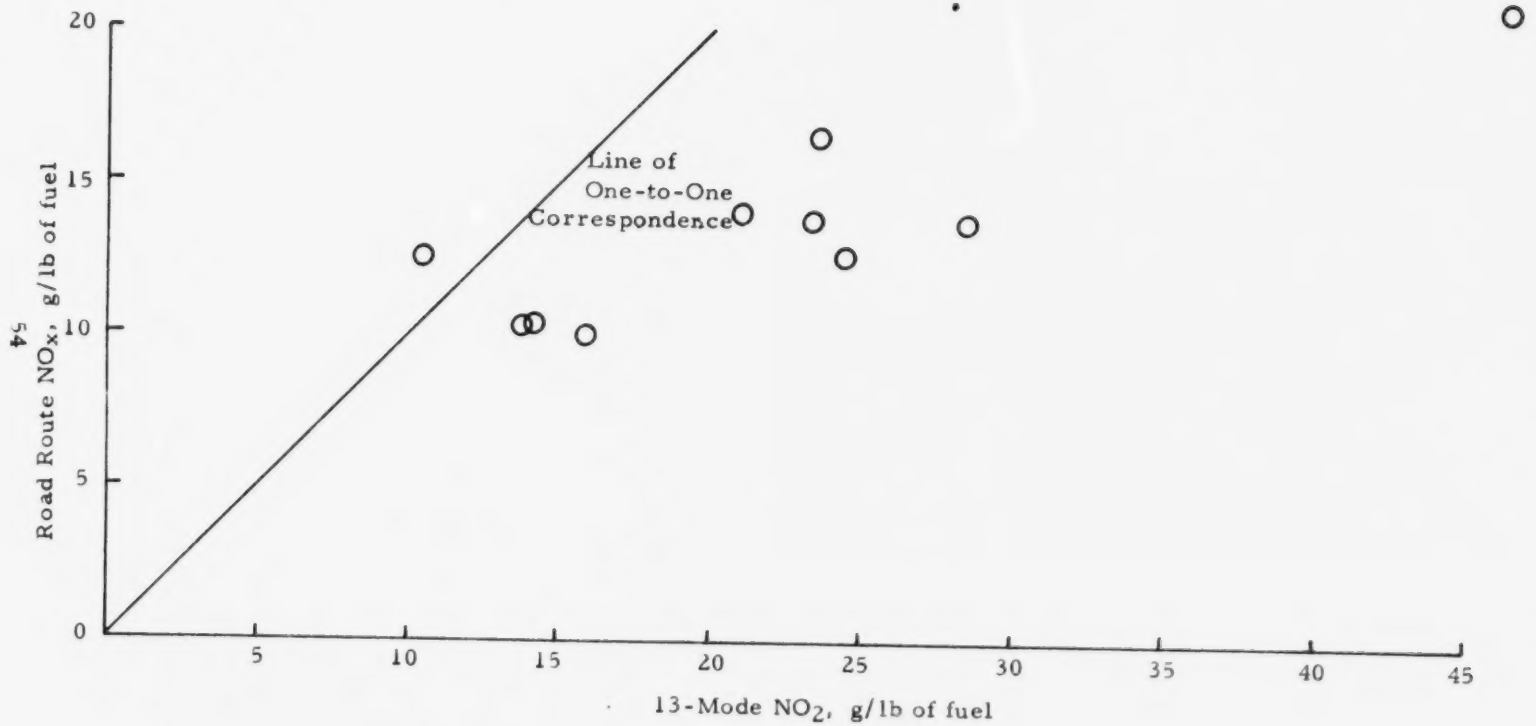


FIGURE 17. RELATIONSHIP BETWEEN ROAD ROUTE NO_x AND 13-MODE NO_2 EMISSIONS IN GRAMS PER POUND OF FUEL

NO_2, or NO_x, depending on the test method, definitely had a poorer level of correlation than HC and CO with respect to the line of perfect correlation (one-to-one) shown in Figure 17. Throughout this discussion it should be kept in mind that on the road, NO_x was measured and expressed as NO_2; while the 13-mode laboratory tests measured NO and expressed it as NO_2. Table 14 average NO_2 by 13-mode to NO_x road ratio was 1.61 meaning the road produced much less NO_x than the dynamometer 13-mode laboratory test. In general, the ten truck fleet produced about 60 percent more oxides of nitrogen under the 13-mode test than when driven over the San Antonio Road Route. This is not surprising when the type of driving represented by the urban traffic route is compared to the intent of the 13-mode test. In the 13-mode test, the idle mode is given a 20 percent weighting factor and the remaining ten speed and load points an equal 8 percent weighting factor each. Thus, the 13-mode test gives equal weight to 100 and 75 percent load as it does to zero and 25 percent load. In the development of the 13-mode test[14], a sincere attempt was made, based on the then best available facts, to select weighting factors so as to reflect all types of diesel HD vehicle operation both on the highway as well as in-town. The compromise thus achieved uses somewhat arbitrary factors to weight power points intended to represent a range of speed and load halfway between it and the next point.

In comparing the road course to 13-mode results, the weighting factors, and to some extent the power points, of the 13-mode test become quite important. Since NO_2 or NO_x is a direct, almost linear function of load or power produced by the engine, it is clear that the road test, in producing substantially lower NO_x, was not a high load factor test. This has been of continuing concern throughout this project. It was known that the road course did not stress the vehicle in the way sustained high-speed high-power intercity highway driving would, and it was known that this would result in a substantial difference in oxides of nitrogen.

Thus, it is no particular surprise that the same group of diesels produced more NO_x by the 13-mode test than on the road course. It may be argued that the San Antonio Road Route represents the way large diesel trucks might operate in and around urban areas. Therefore, the emission factors are particularly useful in regional or local air pollution estimates where trucks are mainly engaged in non high-speed and low load operation. For sustained highway operation, the road route emission factors are likely to understate relative amounts of NO_x, although specific testing to demonstrate this was not performed in this project.

Although hesitant to combine HC + NO_2 (or NO_x) in this project, it must be done if a comparison is made to current and future standards for HD vehicles. Figure 18 is a plot of road HC + NO_x versus 13-mode HC + NO_2 from Table 14 data. As with Figure 17, nine of the ten points lie below the 45 degree line of perfect correlation indicating the 13-mode test still generates more HC + NO_2 than the road route.

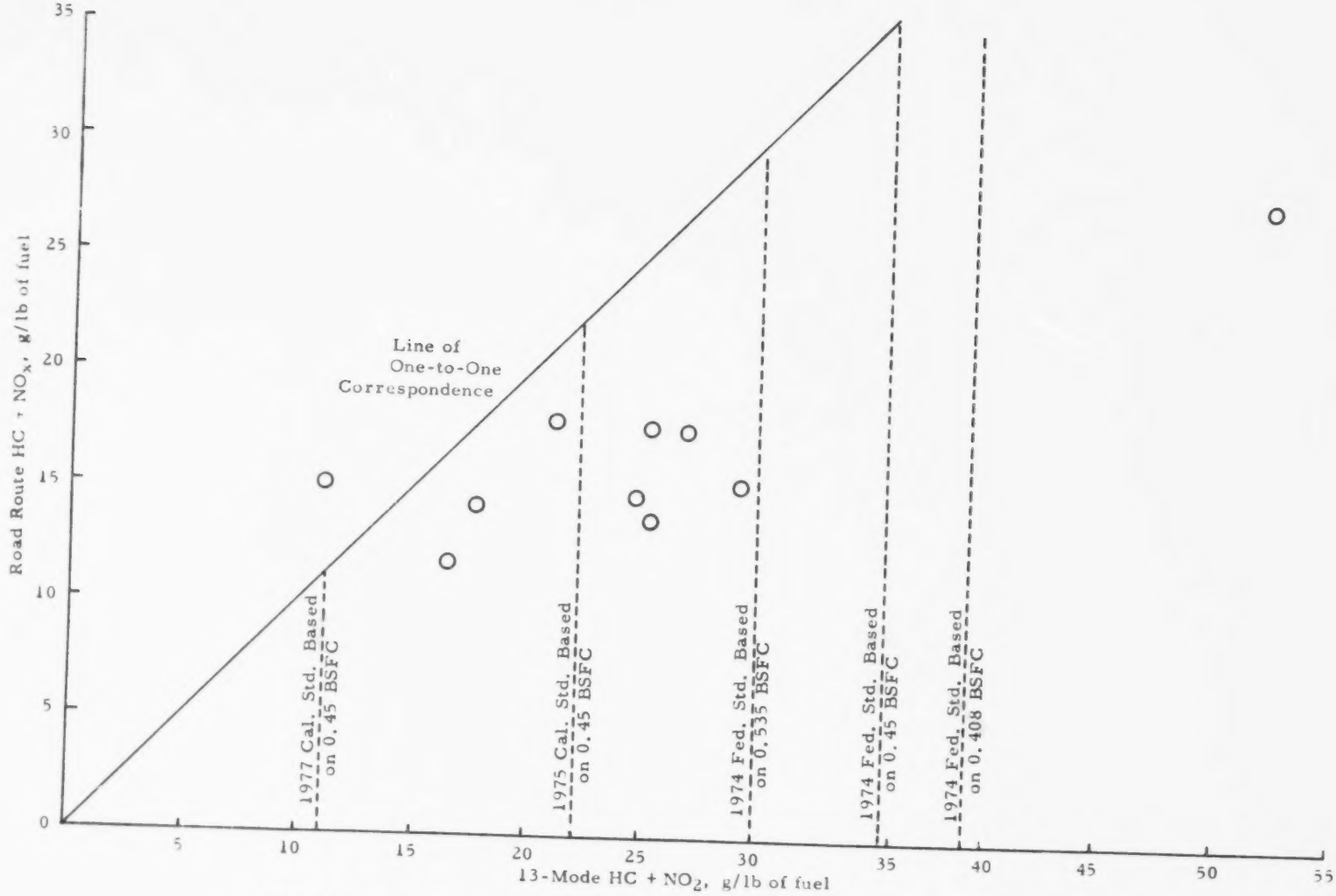


FIGURE 18. RELATIONSHIP BETWEEN ROAD ROUTE HC + NO_x AND 13-MODE HC + NO_2 EMISSIONS IN GRAMS PER POUND OF FUEL

Although HC was slightly the opposite trend, the magnitude of the HC, relative to the mass rate of NO_x, has little effect on the overall ratio of comparison. Listed at the bottom of Table 14 are the overall values of 1.49 (for $HC+NO_x$) versus 1.61 for NO_x alone.

The main reason for Figure 18 is to show the 1974 Federal limits for $HC+NO_2$. To do so, the 16 g/bhp-hr limit has been divided by cycle weighted BSFC from the ten trucks. The average BSFC of 0.450 lb/bhp-hr is shown as well as the Federal limits based on the max and min BSFC of the test fleet. Also drawn in Figure 18 are the future California limits of 10 g/bhp-hr for 1975 and 5 g/bhp-hr for 1977 in terms of g/lb fuel based on the average BSFC of 0.45. Road results from the pre-controlled trucks are all below the 1975 California limit. None of them were below the more stringent California regulation for 1977 based on road emissions, much less the higher NO_x test cycle, the 13-mode procedure.

C. Use of Emissions Results

There are many ways in which the road emission results from this study may be used. Some of these were pointed out in the specific discussion of the road course results and of the 13-mode chassis test results. To summarize, they can be used directly to help estimate national, regional, or local emissions impact from this category of mobile sources. The emissions rates or factors in terms of g/mi and g/lb fuel are both helpful in approaching the impact and each can be used somewhat independently to arrive at the estimate from two standpoints. For quick, rough calculations, the average of the data for the ten diesels can be used since, in a very rough way, it approximates the engine population and application.

The recommended method involves much more work but will be more defensible in determining impact. The ten-truck fleet has to be used in conjunction with other data to be as meaningful as possible. For example, the sales and usage data for diesel trucks in over 6,000 lb vehicles in the U. S. can be employed to "sales-weight" and "use-weight" each of the ten trucks. The ten truck fleet can be "tested" for being typical by comparing its 13-mode results to that of the 59-vehicle fleet[13]. In this way, the authenticity of the results, at least in terms of a larger fleet, may be assessed. In this regard, Trucks D-2 and D-8, same as Trucks 415 and 060122 in the 59-vehicle fleet, help in such a comparison. Federal certification values by the 13-mode test could also be used to judge whether the ten truck fleet results seem typical or not.

Another way to use the extensive 13-mode chassis test results of the 59-vehicle fleet is to compute the cycle weighted composite BSFC.

Once the composite BSFC is obtained, the emissions in grams per pound of fuel could be calculated. Then a more detailed estimate of emissions impact could be made using the chassis 13-mode test results from the diesel surveillance fleet and the relationship developed in this study between the chassis 13-mode emissions and the road emissions in terms of grams per pound of fuel used.

Another use of the road results is in understanding the relationship between road emissions and the 13-mode certification test. While no claim is made that the chassis 13-mode test gives exactly the same emissions as an engine test stand 13-mode test, experience shows that the results from the chassis test are at least consistent with the engine test stand tests. Thus, for feasibility type studies, changes in the 13-mode emission levels required to produce a desired change in atmospheric emission loading could be estimated.

In concluding this section, it should be emphasized that this study represents an important first, though limited, step in understanding diesel emissions on the road and the relationship between the road emissions and 13-mode test emission levels. In addition, the truck engines tested were all manufactured before the 1974 gaseous emission standards went into effect. Just how these standards and the stricter 1975 and 1977 California standards will effect road emissions is not known.

If retarded injection timing at, for example, the high load portions of the Federal 13-mode test is the primary method of NO_x control, then urban driving of these trucks will likely result in only an incremental improvement due to gross differences in the test weighting factors and the ligher duty schedule of the engine in urban traffic operation. This is merely an observation yet one possibility of concern in NO_x reduction strategies.

VI. VEHICLE OPERATIONAL RESULTS

The parameters associated with the vehicle operation such as vehicle speed, engine rpm, and an analog of fuel flow rate were measured during the road tests. This section will discuss the results of these measurements. After presenting the average measured values for these parameters, each parameter will be discussed individually. Finally, the results will be compared to the road tests of gasoline powered trucks conducted under a previous project.

A. Summary of Operational Results

Table 15 presents the average vehicle speed, engine rpm and fuel flow for each of the trucks tested. In addition, average engine rpm and average fuel flow rate have been shown as a percentage of rated speed and rated fuel flow (i.e., fuel flow at rated speed and rated power) for ease of comparison between trucks. The individual test results for each truck are presented in Appendix C. In addition to the average values of the parameters measured, the percentage of time spent at various intervals of each parameter are also listed for the 78 tests.

For each truck, the run averages, maxima and minima of each parameter is shown in tabular form in Appendix D. The first part of Appendix D summarizes vehicle speed in 2 mph increments with percent of time averaged for all runs by all drivers. The next part of Appendix D lists the engine speed in 200 rpm increments, while the last part of Appendix D is a tabulation on the basis of four lb/hr fuel rate increments. Three sets of histograms are included in Appendix E to illustrate the three important parameters that defined the operation of each truck over the road course. These graphs do an excellent job of portraying the operational aspects of each vehicle.

B. Vehicle Speed

From Table 15, it can be seen that the average truck speed during the test run had a narrow range for the trucks tested. Average route speed is one important part of characterization of the route. The average speed for the ten diesel trucks tested was 19.4 miles per hour. Another part of the route characterization is the percentage of time spent in various speed intervals. The average time in various speed intervals for the 78 individual tests of the ten diesel trucks is shown in tabular form in Table 16 and graphically in Figure 19. As can be seen from these presentations, the average time spent at idle (0-2 mph interval) is 19.0 percent. Aside from idle, no more than approximately 7 percent of the time, on an average, was spent in any other 2-mph interval. Since the SARR is essentially an urban driving route, it is instructive to compare the results of this study where possible to the EPA Urban Dynamometer Driving Schedule (UDDS) and the LA-4 road course from which the UDDS was developed. Information on the UDDS and LA-4 route was presented in an SAE paper.[14] Table 17 uses the information from that paper to compare these driving schedules to the SARR.

TABLE 15. AVERAGE VEHICLE OPERATIONAL PARAMETERS FOR DIESEL TRUCKS OPERATED OVER THE SAN ANTONIO ROAD ROUTE

Truck No.	Engine Make and Model	Truck Test Weight, lb.	Number of Tests	Engine Speed, rpm	Engine Speed % of Rated	Fuel Rate, lbs/hr	Fuel Rate % Rated Fuel Flow	Vehicle Speed, miles/hr
D-1	Caterpillar 1150	18820	9	1589	53.0	17.57	23.4	19.13
D-2	Cummins V903	42800	7	1476	56.8	32.71	24.4	18.89
D-3	Detroit Diesel 6-71	41500	6	1252	59.6	23.82	24.6	19.28
D-4	Cummins NHC 250	39490	7	1470	70.0	28.21	27.7	19.59
D-5	Caterpillar 1160	37610	8	1250	44.6	23.25	26.7	19.56
D-6	Mack ENDT 676B	49460	7	1253	59.7	26.73	23.0	19.31
D-7	Detroit Diesel 8V-71	50580	8	1295	61.7	34.96	31.2	19.50
D-8	Mack ENDT 673B	41090	9	1305	68.7	25.76	28.9	19.81
D-9	Cummins NTC 290	50980	8	1447	68.9	36.63	30.0	20.11
D-10	Detroit Diesel 4L-53	14430	9	1198	42.8	16.57	28.6	19.02
				Average	58.6		26.9	19.42

TABLE 16. PERCENTAGE OF TIME AT VARIOUS VEHICLE SPEED INCREMENTS FOR TEN DIESEL TRUCKS OPERATED ON THE SARR

(78 tests total)

Speed Interval, mph	Average Percent Time in Interval	Maximum Percent Time in Interval	Minimum Percent Time in Interval
0-2	18.97	29.53	8.69
2-4	2.28	5.67	1.02
4-6	2.35	6.30	1.16
6-8	2.62	5.20	1.47
8-10	2.75	6.16	1.28
10-12	2.99	4.63	1.28
12-14	3.58	5.98	1.82
14-16	4.38	7.63	2.12
16-18	4.49	6.39	1.68
18-20	4.95	7.45	2.29
20-22	5.20	9.81	2.29
22-24	6.18	10.72	2.47
24-26	6.76	15.50	3.18
26-28	7.15	13.83	2.45
28-30	6.47	13.82	0.92
30-32	4.50	12.84	0.72
32-34	2.72	10.35	0.00
34-36	1.55	4.73	0.15
36-38	0.86	3.39	0.00
38-40	0.67	2.29	0.12
40-42	0.68	2.29	0.09
42-44	0.83	2.66	0.10
44-46	1.18	3.57	0.10
46-48	1.58	4.31	0.18
48-50	1.56	4.45	0.00
50-52	1.09	2.93	0.00
52-54	0.80	3.26	0.00
54-56	0.51	2.71	0.00
56-58	0.27	1.89	0.00
58-60	0.09	1.27	0.00

TABLE 17. COMPARISON OF SARR WITH UDDS AND LA-4 ROAD COURSE

	SARR	UDDS*	LA-4 Road Course (12 mi.)**
Percent Time at Idle	19.0 (diesel trucks)	18.2 (cars)	18.2 (cars)
Average Speed	19.4 (diesel trucks)	19.7 (cars)	18.9 (cars)

* From Table 5, Reference 14.
**From Table 1, Reference 14.

It might be expected that average route speed would be a function of vehicle size, shape, weight, power to weight, or at least type of vehicle or its application. However, Table 17 indicates that this is not necessarily the case at least for the ten diesel trucks operated over the San Antonio road course. Possibly there is a real difference, but the data from this project fails to show it. The trucks were purposely driven during the day, but not necessarily very early or very late in the day when commuter car traffic is normally at its peak. Generally, trucks are used throughout the day. Therefore, operation during the normal truck working day was considered to be the most representative of truck operation in the urban situation. Also, operation during the day would improve test-to-test repeatability.

One of the inferences from the comparison in Table 17 is that diesel trucks, even large semi-trailer rigs, can keep up with urban traffic. The truck's speed is controlled by prevailing traffic conditions and posted speed limits and not necessarily by limitations of the vehicle's power, etc.

One common way of thinking about large trucks in urban operation is that they make, or tend to help make, traffic if for no other reason than their sheer size, shape and volume. The large vehicles occasionally are unable to maneuver through traffic situations. As explained earlier, however, the design of this project intentionally minimized operation during peak traffic and maximized operation during normal work day traffic. In the specific case of the operation of the ten trucks, they were definitely able to stay up with prevailing traffic and easily maintain the posted speed limits. They were operated at half-payload and accordingly experienced more rapid 0-30 mph accels than would have been the case if fully loaded. Trucks operating in and around cities operate neither all full or all empty, so the selection of half payload was certainly justified.

The histogram of Figure 19 is quite interesting as it shows where vehicle speed maximum and minimum occur. The use of 2 mph intervals is rather close for this type of work, but it is advantageous for describing the route accurately. Note the first maximum is shown in the area of 26 to 28 mph, since 30 mph was the posted limit on much of the course. The other maximum time was spent at 46 to 50 mph. This much smaller, but

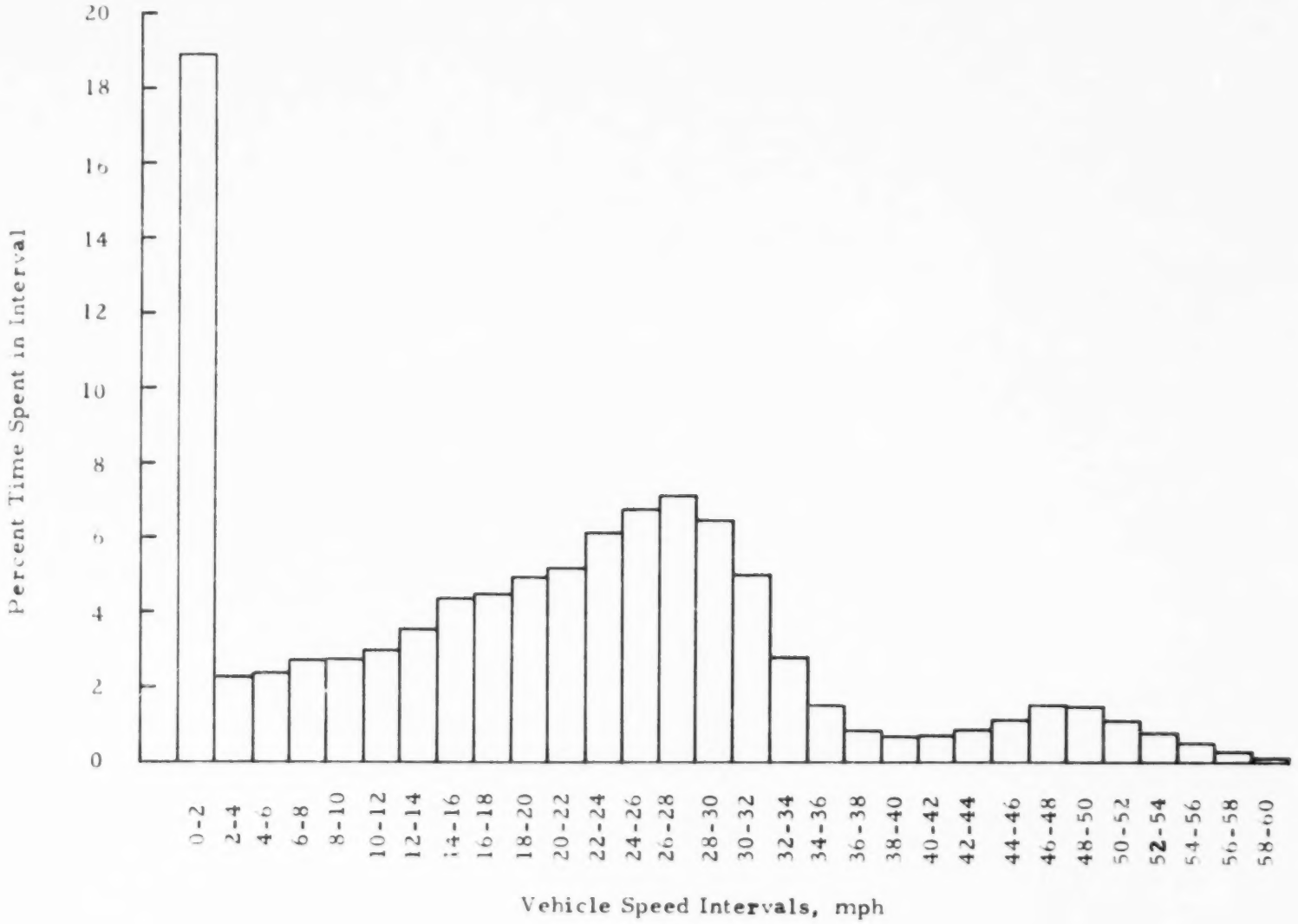


FIGURE 19. AVERAGE PERCENTAGE TIME IN VARIOUS SPEED INTERVALS FOR TEN DIESEL TRUCKS ON THE SARR

distinct peak percent time was a direct result of the operation over the in-town expressway portion of the interstate highway. Of course, the idle, or vehicle at rest, of 19 percent was the highest individual time spent at any one condition.

C. Engine Speed, rpm

No presentations of fleet average rpm or fleet average percent time in rpm intervals are appropriate, since engine rpm is a design function and varies from engine to engine. Transmission design also affects engine operational speeds. Therefore, the average speed for each truck is presented in Table 18 as a percent of rated speed. It is interesting to note that the average engine speed from all ten trucks tested on the road course is approximately 59 percent of the rated speed. This corresponds closely if not with the maximum torque speed, the intermediate test speed in the 13-mode FTP for most highway diesel engines.

TABLE 18. PERCENTAGE OF TIME AT SELECTED ENGINE SPEED INTERVALS FOR TEN DIESEL TRUCKS ON THE SARR

Truck	Rated Engine Speed, rpm	40% Rated Speed, rpm	80% Rated Speed, rpm	% Time at 40 to 80% Rated Speed	% Time Above 80% Rated Speed	% Time at Idle
D-1	3000	1200	2400	65	7	19.2
D-2	2600	1040	2080	48	22	19.7
D-3	2100	840	1680	47	27	21.0
D-4	2100	840	1680	34	35	23.3
D-5	2800	1120	2240	55	3	19.4
D-6	2100	840	1680	48	25	24.7
D-7	2100	840	1680	33	40	23.6
D-8	1900	760	1520	37	47	21.5
D-9	2100	840	1680	23	50	26.0
D-10	2800	1120	2240	52	8	19.5
			Average[a]	43	28	21.8

[a] The 7.2 percent of the time not accounted for represents the percent of time below 40 percent of rated but above low idle speed.

The average percent of time spent at various engine rpm intervals for each truck is presented in Appendixes D and E. Table 18 lists the rated speed for each engine, the percent time spent at idle, the percent time at 40 to 80 percent of rated speed and the percent time spent above 80 percent of rated speed. The fleet averages for these time percentages are also shown. The selection of 40 to 80 percent of rated speed and above 80 percent of rated speed was arbitrary and only for purposes of this study.

The large variation in the percent time within the two engine rpm intervals is quite evident from Table 18. A number of variables affect engine speed range including the engine-transmission combination and its match to the intended vehicle use. However, the time spent at the engine rpm intervals shown in Table 18 appears possibly to be a function of vehicle weight. This can be better seen in the plots of test weight versus the percent time in each engine rpm interval shown in Figure 20. It is not surprising that the data exhibits some scatter in view of the already mentioned variables affecting engine speed in a vehicle.

The top graph plots the percent of time between 40 and 80 percent of rated engine speed and shows a decrease in this interval as test weight of the ten truck fleet increased. The lower curve, of the percent of time at engine speed over 80 percent of rated, shows the opposite trend of an increase with weight.

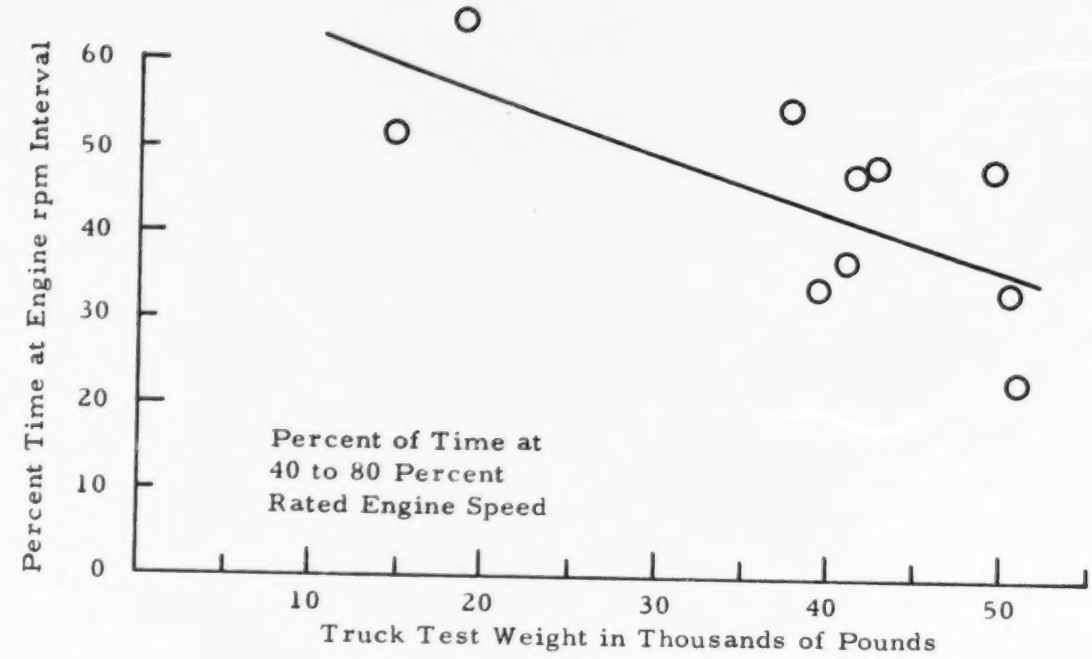
There are many ways to interpret these trends, but the preferred explanation is that the higher loaded vehicles used more of the available speed range of the engine. Except for the V-903 Cummins, Truck D-2, the line-haul quality engines were all rated at a medium speed of 2100 rpm. Trucks D-1, D-5, and D-10 were powered by mid-range engines and D-1 and D-10 were in relatively light weight delivery truck applications. These mid-range engines are characterized by their higher speed range.

To compare engine speed to the 13-mode test, the SARR data is grouped according to the three nominal ranges of GVW or (GCW) used. Table 19 compares the SARR and 13-mode test by percent of time at idle and at two engine rpm intervals expressed as a percent of rated speed. The reason for using 40 to 80 percent is that it is 20 percent each side of the usual intermediate speed of the 13-mode test. The other speed, above 80 percent rated, includes the rated engine speed and minus 20 percent and plus 10 or so percent of speed above rated to high idle governed engine speed.

TABLE 19. COMPARISON OF SARR AND 13-MODE TESTS BY ENGINE SPEED

	Percent Time		
	Idle	40 to 80% of Rated Speed	Above 80% Rated Speed
13 Mode Test:	20	40 (at 60% rated speed)	40 (at rated speed)
SARR:			
under 25,000 lb GVW	19.4	59	8
58,000 lb GCW	21.0	44	27
72,000 lb GCW	24.8	35	38

From the above table it can be seen that the time spent at idle is approximately equal for the two tests. The comparison at rated and nomi-



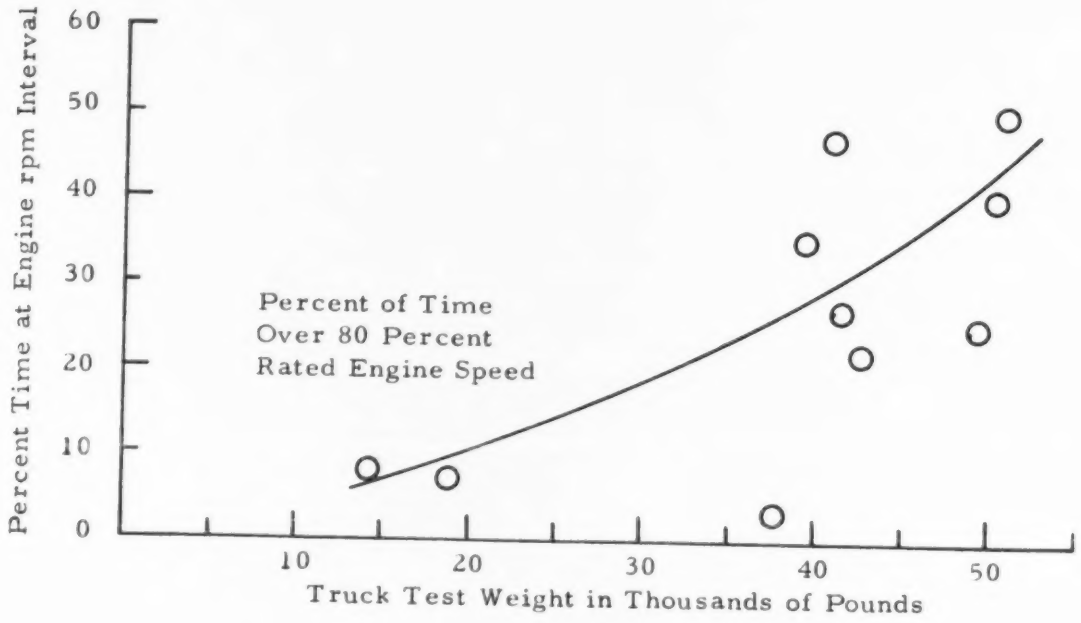


FIGURE 20. EFFECT OF TRUCK TEST WEIGHT ON PERCENT OF TIME AT 40 TO 80 AND OVER 80 PERCENT OF RATED ENGINE SPEED

nal 60 percent of ratedengine speed is dependent on vehicle weight. The percent time at the two speed intervals agrees closely for the larger trucks but shows poor agreement for the small trucks. It should be noted that while the SARR is primarily an urban driving course, the 13-mode test was intended to be a composite of all types of driving.[6] While this comparison indicates nothing about the power level in either test, it is a useful comparison when used in conjunction with the fuel flow rate results presented in the next section.

D. Fuel Flow Rate

Table 15 shows the average fuel flow rate as a percent of rated fuel flow for each truck, as well as the fleet average. The fuel rate varied from approximately 23 percent to 31 percent of rated fuel flow regardless of vehicle weight. This seems to indicate that the engines were, in general, well matched to their application. The individual test results for each truck is tabulated in the Appendix C tables and the fuel flow rate distribution, histograms, etc. in Appendixes D and E.

The fuel flow rate distribution in terms of pounds per hour is of limited usefulness, since fuel rate is a function of engine size and efficiency and vehicle weight. However, when expressed as a percent of rated fuel flow, a much more meaningful comparison can be made between trucks. In addition, for the engines tested in this project, the relationship between fuel rate and power is approximately linear. Thus fuel rate can be used as a satisfactory indication of engine power output.

To compare the SARR and 13-mode tests in terms of percent time at various power levels, the fuel rate distributions in Appendix D can be used. Since the 13-mode test has four power settings in terms of maximum horsepower at two different speeds it is difficult to compare with the SARR results which are not at discreet speeds. However, if some gross assumption about diesel engine performance are made, a rough comparison between the SARR and 13-mode test can be made. The first assumption is that the maximum power at the 60 percent rated speed condition is approximately 75 percent of maximum power at rated speed. The second assumption is that fuel rate changes only slightly with engine speed.

Thus the 13-mode test can be expressed in terms of percent time at power levels that are percentages of maximum horsepower at rated speed independent of engine speed. The SARR fuel rate distribution can be calculated in terms of percent of fuel flow at maximum power and equated to percent of maximum power, again independent of engine speed. The times at these various power levels for the two tests can then be compared. Since some gross assumptions were used to arrive at this method, a detailed comparison is not warranted. Using this comparison the 13-mode test would have approximately 52 to 60 percent of the time below 37.5 percent of maximum power, including time at idle.

Table 20 shows the fuel rate at 37.5 percent of the fuel at maximum power and rated speed for each truck. It also shows the percent time spent below this 37.5 percent level for each truck and the average for the fleet. The SARR fleet average of 70 percent of the time below 37.5 percent maximum power is slightly higher than the 13-mode, which was 52 to 60 percent of the time below this power level. Thus, by this rough analysis, the SARR appears to require less power than is used in the 13-mode test. This tends to confirm the 60 percent higher NO_x emissions from the 13-mode tests relative to the road route.

TABLE 20. PERCENTAGE OF TIME BELOW 37.5 PERCENT OF MAXIMUM FUEL RATE FOR TEN DIESEL TRUCKS ON THE SARR

Truck No.	Fuel Rate at Max Power, lbs/hr	Fuel Rate at 37.5% Max Power, lbs/hr	Percent of Time Below 37.5% Max Fuel (Power)
D-1	75	28	78
D-2	134	50	74
D-3	97	36	74
D-4	102	38	71
D-5	87	33	67
D-6	116	44	75
D-7	112	42	65
D-8	89	33	67
D-9	122	46	65
D-10	58	22	67
		Average	70

This should also mean that the 13-mode tests have a higher weighted composite fuel rate than the average road fuel rate. Figure 21 is a plot of the 13-mode composite fuel rate versus the SARR average fuel rate for each truck. The higher 13-mode fuel rates are clearly distinguishable. This same information is shown in tabular form with the ratio of the two fuel rates listed in Table 21.

Table 21 shows a consistant ratio less than one for the road to 13-mode test fuel rate. The average 0.692 ratio means that the road duty cycle was definitely not as heavy duty or highly loaded as the 13-mode test, a point discussed in the previous section on emissions results. The 60 percent increase in NO_x by the 13-mode test agrees nicely with the 45 percent increase in fuel consumption relative to the road, as indicated by the 0.692 ratio.

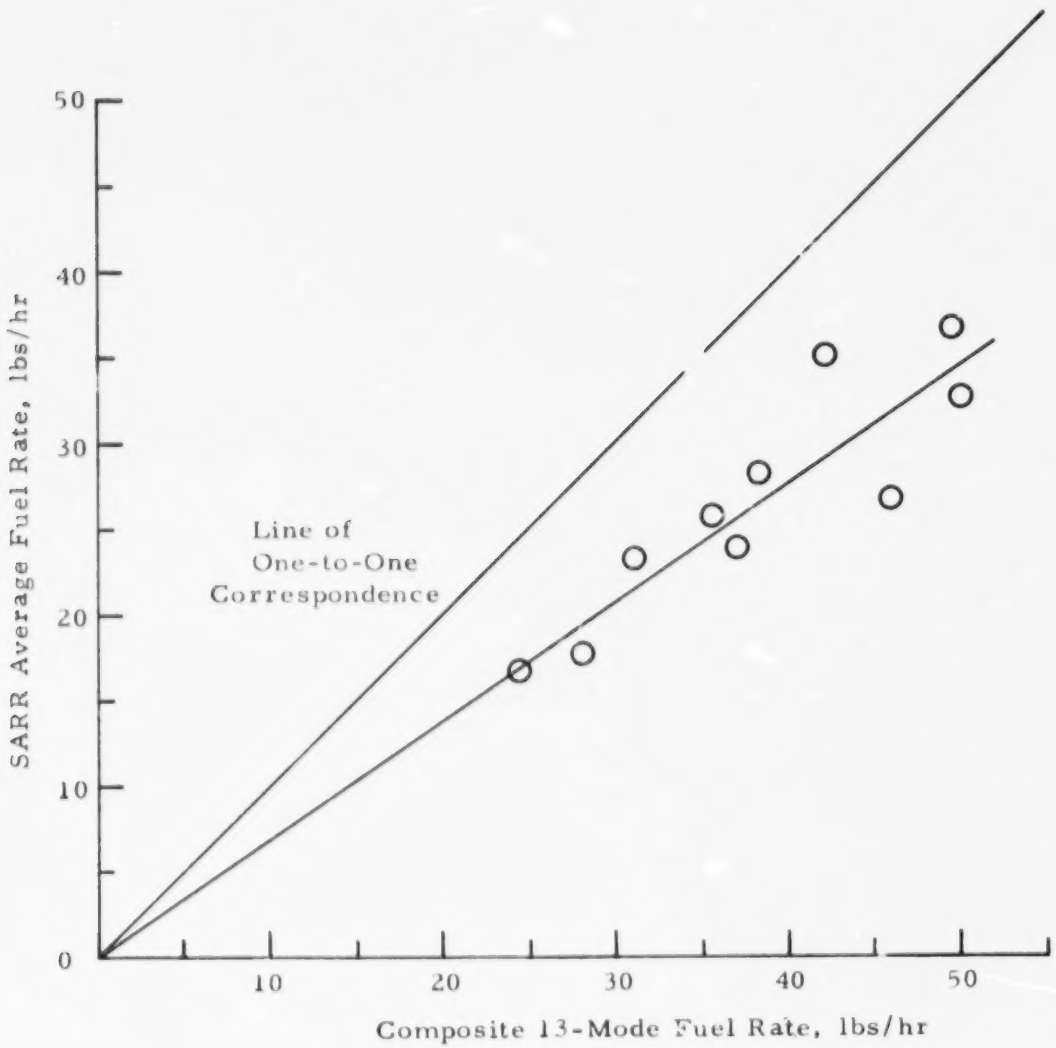


FIGURE 21. COMPARISON OF ROAD TO 13-MODE COMPOSITE FUEL RATES

TABLE 21. COMPARISON OF AVERAGE ROAD ROUTE AND 13-MODE COMPOSITE FUEL RATES

Truck No.	SARR Route Avg. Fuel Rate, lbs/hr	13-Mode Composite fuel Rate, lbs/hr	Ratio of 13-Mode/ Road Route Fuel Rates
D-1	17.57	28.33	1.612
D-2	32.71	50.04	1.530
D-3	23.82	37.33	1.567
D-4	28.21	38.54	1.366
D-5	23.25	31.20	1.342
D-6	26.73	46.13	1.726
D-7	34.96	42.29	1.210
D-8	25.76	35.76	1.388
D-9	36.63	49.62	1.355
D-10	16.57	24.51	1.479
		Average	1.458

Fuel economy in terms of miles per gallon was also calculated for each road test from the weight of fuel used. These fuel economy values are listed with the average emission values in Section V, Table 4.

VII. ADDITIONAL GASOLINE TRUCK ROAD DATA

One requirement of this project was to reduce road operational data obtained during the previous 1972 study of 25 gasoline trucks under Contract EHS 70-113. The final report[8] under this contract included road operational data for two runs considered typical. Prior to this project on ten diesels, the road operational data was obtained only to define how each truck performed over the course. The percent of time at given increments of engine speed, vehicle speed, and manifold vacuum, in the case of the gasoline engine, was, therefore, of lower priority than the principal mass emission rates.

A. Background

The desire to investigate possible transient type test schedules, stationary and/or chassis dynamometer operated, increased the importance of the road data part of the project. If driving traffic was of interest and the characteristics of the San Antonio Road Route were felt representative, then definition of how each truck performed is quite important. At this point, it should be recalled the somewhat arbitrary nature of the course and the original intent of it in studying mass emissions from trucks. At the time, it was considered opinion that if one drove traffic for about twenty or so minutes, mixed up the types of streets and roads, speed limits, etc., that the mass emissions from that type of operation would not be substantially different from another such procedure, though more scientifically based. This considered opinion had been the result of many years of work with driving habit surveys, cycle development and the like with gasoline powered cars. In a way, the LA-4 transient driving cycle featured in the light duty Federal Test Procedure[5] is a product of such a general approach. All such attempts to revise the driving schedule have failed to materially change the mass emission rate, thereby confirming the general considered opinion.

A project is currently in progress called CAPE-21, under CRC Air Pollution Research Advisory Committee (APRAC) sponsorship, to study driving habits of trucks in New York and Los Angeles. Another project has been authorized to develop cycles based on the road acquired truck performance data. As these projects are completed, it will be interesting to compare the San Antonio Road Route and the operational data from each truck thus operated to the broader based CRC studies. Of even more interest will be the comparison of emissions in grams per lb of fuel for a few trucks operated on both the road route and the new HD cycle-procedure. This will provide a good test of the "considered opinion method and also help to confirm or otherwise relate the extensive road course work to the new HD cycle.

B. Gasoline Truck Operational Data

To aid in the overall study of a new, transient type, driving schedule for HD engines, the magnetic tape and strip chart records for those runs not reported in Reference 8 were analyzed and computer reduced in the standard format used with the diesels and previous truck studies. Appendix F includes copies of the computer tabulations of percent time in the same vehicle speed, engine speed, and manifold vacuum increments used with the earlier reported typical runs. Although there were usually a fairly large number of replicate runs, on the order of three for each of three drivers, the road operational records may be far fewer than the nominal nine gaseous emissions runs. The experimental plan called for primary concern over gaseous emissions values and enough road data to define the trucks' ability to negotiate the course. The test could be run for emissions without any of the remainder of the experiment functioning, and on a number of occasions it was necessary to do so. Where a run was obviously made with one of the inputs in error, such as due to a shift in calibration or some other unknown cause, the data for that parameter on that run was deleted. Where possible, the strip chart recording was reduced to provide as complete data as possible. On a number of trucks, however, the redundant strip chart recorders were not used and, therefore, the back-up data is not available. In any event, at least two and as many as seven more runs for each truck were reduced and included in Appendix F.

Table 22 lists the average of all the road data taken that is considered satisfactory with the 25 gasoline trucks tested in 1972. The number of runs on which the max, min, and average vehicle speed, engine speed and manifold vacuum is based is also indicated on Table 22. This table is a summary of Table F-1 in Appendix F which lists all the individual run results. Runs marked by an asterisk were reduced and reported in Reference 8, and at that time were considered or selected as representative. In many cases, their selection was based on driver's comments or on a brief scan of the strip chart.

On several trucks, the magnetic tape system could not easily be made to work for one reason or another making the strip charts and their manual reading and integration necessary. Although every attempt was made to prevent errors or to delete data obviously in error, the priority given road data acquisition was not as high as for emissions. Accordingly, the data should be used with some degree of discretion and with care. In review of the replicate runs, it was noted that in most cases, the originally reported results were typical of the additional runs.

C. Comparison of Diesel and Gasoline Truck Operating Parameters

Vehicle speed and fuel economy in mpg for the road course are

TABLE 22. AVERAGE ROAD DATA FOR 25 GASOLINE TRUCKS

Truck No.	Based on No. of Runs	Vehicle Speed, mph			Engine Speed, rpm			Intake Vac, in. Hg		
		Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
1	9	21.2	16.5	18.9	1836	1477	1648	17.0	14.8	16.2
2	6	17.3	17.1	17.2	1713	1482	1622	16.4	14.8	15.4
3	6	19.0	15.9	17.2	1709	1415	1555	14.6	13.5	14.2
4	6	22.3	18.5	20.6	1755	1536	1651	12.1	11.0	11.6
5	1	----	----	22.5	----	----	1879	----	----	12.6
6	13	22.0	15.9	19.2	1883	1579	1759	13.0	11.9	12.5
7	1	----	----	21.3	----	----	1472	----	----	13.9
8	8	22.4	19.5	20.5	1686	1486	1581	13.4	12.3	13.0
9	4	20.7	18.8	19.7	1573	1433	1511	11.7	11.2	11.4
10	8	25.1	16.8	21.3	1704	1462	1550	14.8	12.8	13.8
11	9	23.3	20.9	22.3	1951	1685	1781	14.1	13.4	13.6
12	8	23.1	18.6	20.8	1796	1537	1667	12.2	10.7	11.7
13	9	21.0	17.8	19.1	1558	1359	1466	13.7	12.4	12.9
14	6	20.0	18.1	18.9	1914	1585	1747	13.8	11.8	12.8
15	1	----	----	25.9	----	----	1683	----	----	11.2
16	3	18.3	16.8	17.7	1714	1486	1612	12.4	11.6	12.0
17	6	19.0	17.5	18.3	1626	1407	1500	14.0	12.8	13.3
18	8	20.8	16.1	18.8	1716	1372	1558	14.3	12.8	13.8
19	9	20.8	18.8	19.7	1816	1696	1738	14.6	13.1	13.9
20	7	19.5	17.5	18.3	1797	1677	1726	13.7	12.5	13.0
21	3	18.2	16.8	17.5	1868	1622	1782	12.7	12.1	12.4
22	7	24.5	20.4	22.3	2072	1899	1994	14.7	13.3	14.2
23	5	19.4	18.1	18.7	1998	1783	1918	13.7	12.2	12.9
24	7	20.4	16.6	18.0	2005	1558	1728	14.4	13.3	13.9
25	8	20.8	19.0	19.8	1970	1548	1706	13.9	13.0	13.4
		AVERAGE		19.8						

two parameters that can be compared for the ten diesel and the 25 gasoline truck fleets. From Table 22, the average route speed was 19.8 mpg for the 25 trucks. Compared to the 19.4 mpg average route speed of the ten diesels, it is apparent that no significant or substantial difference in the two groups of trucks was encountered in negotiating the San Antonio Road Route. Assuming the traffic and route may be considered normal for a given working day of a delivery or other type of urban truck use, then it follows that neither type of truck was grossly and consistently over-powered or under-powered for this particular course and half payload weight.

One additional comparison is the fuel economy in mpg for each of the gasoline and diesel trucks. Figure 22 is a plot of the average measured miles per measured fuel used against test weight. Note the disparity in test weights but the general agreement, in range of fuel economy, for both gasoline and diesel trucks. Stated another way, the superior fuel economy of the diesel truck is clearly demonstrated by Figure 22. For example, assume a test weight, empty weight + 0.5 payload, of 15,000 lb, the gasoline powered truck got about 6 miles per gallon while the 15,000 lb diesel powered truck got about 8.3 miles per gallon or an increase of about 38 percent. Consider a heavier truck weight of 23,000 lb. The gasoline truck got about 4 miles per gallon, while the diesel got about 7.3 miles per gallon, for about 82 percent increase.

Certainly, these two examples are supported by test evidence of the two fleets and agree with many other reports on fuel economy by the two powerplants. To extrapolate the trends beyond the data is not appropriate. As test weight is decreased, the two straight line curves converge to about 10 mpg. As test weight is increased, the rate of divergence of the two curves likely will not continue. The slope of the gasoline truck must become less steep and flatten out or else gasoline trucks would get zero miles per gallon at 40,000 lb total weight. This is absurd and; therefore, until additional data of this type is obtained, no extrapolation either way from the range of results presented is permitted.

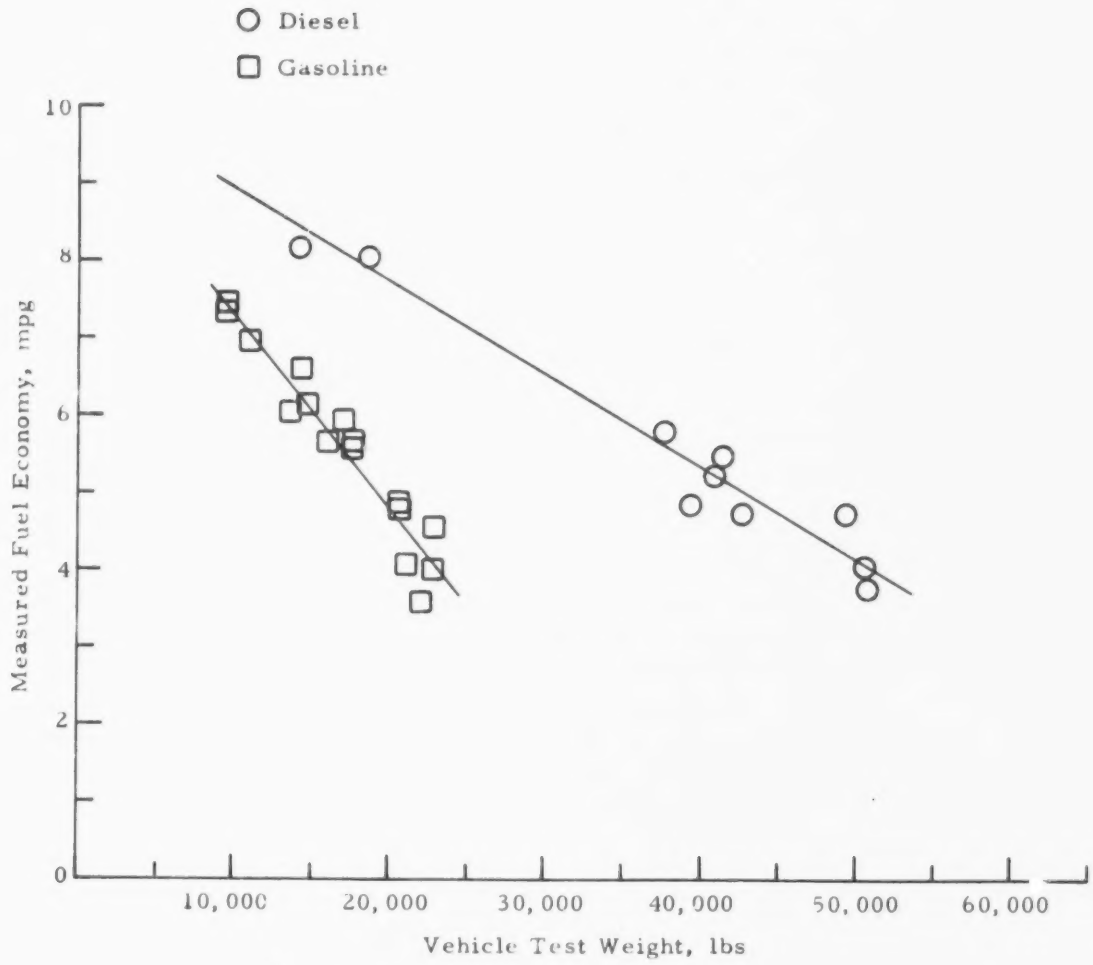


FIGURE 22. GASOLINE AND DIESEL TRUCK ROAD ROUTE FUEL ECONOMY

LIST OF REFERENCES

1. 1973 Motor Truck Facts, Motor Vehicle Manufacturers Association of the U. S., Inc.

2. Federal Register, Vol. 33, No. 108, Part II, Department of Health, Education and Welfare, June 4, 1968.

3. Ward's 1973 Automotive Yearbook

4. Tyree, C D. and Springer, K. J., "Studies of Emissions from Gasoline-Powered Vehicles Above 6,000 lb Gross Vehicle Weight," Final Report to the National Air Pollution Control Administration under Contract PH 86-67-72, July 1970.

5. Federal Register, Vol. 37, No. 221, Part II, Environmental Protection Agency, November 15, 1972.

6. Bascom, R. C. and Hass, G. C., "A Status Report on the Development of the 1973 California Diesel Emissions Standards," SAE Paper No. 700671, presented at the National West Coast Meeting, Los Angeles, California, August 24-27, 1970.

7. State of California, Air Resources Board, "California Exhaust Emission Standards, Test and Approval Procedures for Diesel Engines in 1973 and Subsequent Model Year Vehicles Over 6,001 Pounds Gross Vehicle Weight," amended February 17, 1971.

8. Ingalls, M. N. and Springer, K. J., "In Use Heavy Duty Gasoline Truck Emissions, Part 1, Mass Emissions from Trucks Operated Over a Road Course," Final Report for the Environmental Protection Agency under Contract EHS 70-113, February 1973.

9. Springer, Karl J., "Emissions from a Gasoline- and Diesel-Powered Mercedes 220 Passenger Car," Report No. AR-813, Contract No. CPA 70 44, June 1971.

10. Springer, Karl J. and Ashby, H. Anthony, "The Low Emission Car for 1975 - Enter the Diesel," Paper No. 739133, Inter-society Energy Conversion Engineering Conference, August 1973.

11. "Cumulative Regulatory Effects of the Cost of Automotive Transportation (RECAT)", prepared by the RECAT Ad Hoc Committee for the Office of Science and Technology, February 28, 1972.

LIST OF REFERENCES (Cont'd)

12. "Environmental Quality - 1973," The Fourth Annual Report of the Council on Environmental Quality, September 1973.

13. Storment, J. O. and Springer, K. J., "A Surveillance Study of Smoke from Heavy Duty Diesel Powered Vehicles, Southwestern U.S.A.," Final Report to the Environmental Protection Agency under Contract EHS 70-109, June 1973.

14. Kruse, Ronald E. and Huls, Thomas A., "Development of the Federal Urban Driving Schedule," SAE Paper No. 730553, presented at the Automobile Engineering Meeting, Detroit, Michigan, May 14-18, 1973.

APPENDIX A

EXHAUST EMISSIONS OBTAINED FROM TEN DIESEL POWERED TRUCKS OPERATED OVER SAN ANTONIO ROAD ROUTE

TABLE A-1. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D-1, 1972 FORD/CAT 1150 573 CID V8, 29000 LB. GVW, BOX VAN

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL WT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
12-11-73	1	JGC	22.08	1.98	2.38	3.18	6.72	8.08	10.78	6.03	7.26	9.68	6.50	7.88
12-11-73	3	JGC	22.49	1.97	1.96	2.58	6.92	6.90	9.07	6.12	6.10	8.02	6.90	8.00
12-12-73	6	RKH	24.09	2.06	2.00	2.75	8.62	8.42	11.61	6.82	6.63	9.19	5.70	8.98
12-12-73	7	JTJ	23.66	1.82	2.01	2.81	7.32	8.05	11.28	5.96	6.56	9.19	5.90	8.68
12-12-73	8	JTJ	20.65	2.19	3.06	3.17	6.37	8.90	9.23	6.24	8.72	9.05	7.10	7.21
12-12-73	9	JTJ	23.85	1.83	2.20	3.12	7.38	8.90	12.61	6.01	7.26	10.28	5.90	8.68
12-19-73	10	JGC	22.48	1.90	2.50	3.39	6.59	8.68	11.89	5.89	7.96	10.36	6.97	7.91
12-19-73	11	RKH	22.27	1.89	2.69	3.43	6.90	9.13	11.62	5.80	8.28	10.54	6.57	7.79
12-19-73	12	RKH	21.60	1.98	2.71	3.43	6.39	8.73	11.09	5.90	8.09	10.22	6.71	7.63
OVERALL AVERAGE			22.57	1.96	2.39	3.09	6.97	8.42	10.98	6.09	7.40	9.61	6.36	8.09
DRIVER JGC AVERAGE			22.35	1.95	2.28	3.03	6.74	7.89	10.98	6.01	7.09	9.35	6.96	7.93
DRIVER JTJ AVERAGE			22.72	1.96	2.42	3.04	7.02	8.61	11.04	6.07	7.51	9.51	6.30	8.19
DRIVER RKH AVERAGE			22.63	1.97	2.47	3.20	7.14	8.76	11.48	6.18	7.67	9.99	6.33	8.19

TABLE A-2. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D-2, 1970 IH/CUMMINS V903 903 CID V8, 58000 LB. GVW, TRACTOR

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL WT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
1-17-74	1	JGC	22.75	1.48	4.16	5.38	2.97	8.36	10.82	4.65	13.06	16.90	11.31	4.53
1-17-74	2	JGC	22.28	1.35	4.36	4.58	2.55	8.23	8.66	4.15	13.40	14.10	11.29	4.34
1-18-74	4	RKH	23.17	1.04	4.28	5.34	2.37	9.72	12.13	3.33	13.70	17.09	10.20	5.02
1-18-74	6	RKH	22.83	1.15	4.18	5.75	2.59	9.41	12.94	3.63	13.18	18.12	10.14	5.05
1-21-74	8	JTJ	21.80	1.29	4.78	7.49	2.55	9.40	14.73	3.90	14.38	22.55	11.08	4.62
1-21-74	10	JTJ	22.90	1.30	4.17	6.36	2.80	9.00	13.73	4.10	13.18	20.12	10.61	4.83
1-21-74	7	JTJ	22.13	1.05	3.96	7.06	2.22	8.36	14.90	3.21	12.11	21.59	10.49	4.88
OVERALL AVERAGE			22.55	1.24	4.27	5.99	2.58	8.93	12.56	3.85	13.29	18.64	10.80	4.75
DRIVER JGC AVERAGE			22.51	1.41	4.26	4.98	2.76	8.30	9.74	4.40	13.23	15.50	11.55	4.43
DRIVER RKH AVERAGE			23.00	1.10	4.23	5.54	2.48	9.57	12.53	3.48	13.44	17.60	10.17	5.03
DRIVER JTJ AVERAGE			22.28	1.21	4.30	6.97	2.52	8.92	14.96	3.74	13.22	21.42	10.73	4.78

TABLE A-3. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D-3, 1971 IH/D.D. 6-71 426 CID I6, 58000 LB. GVW, TRACTOR

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL WT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
1-22-74	3	JGC	21.12	.75	24.67	5.02	1.66	54.96	11.08	2.10	69.03	14.04	9.57	5.58
1-22-74	6	JGC	23.82	.50	25.65	5.52	1.23	63.60	13.69	1.57	80.95	17.92	9.61	5.56
1-23-74	7	JTJ	23.99	.37	30.11	5.62	.93	74.78	13.95	1.19	95.67	17.85	9.66	5.53
1-23-74	8	JTJ	23.26	.55	28.92	5.33	1.18	62.17	11.45	1.69	89.10	16.41	10.02	5.93
1-23-74	10	RKH	28.07	.34	19.59	4.56	1.02	58.92	13.60	1.27	72.81	16.95	9.91	5.67
1-23-74	11	RKH	22.30	.33	21.90	5.17	.74	48.37	11.69	.97	63.23	15.28	9.87	5.91
OVERALL AVERAGE			23.76	.47	25.06	5.20	1.19	60.30	12.58	1.46	78.46	16.33	9.82	5.45
DRIVER JGC AVERAGE			22.97	.62	25.16	5.27	1.44	59.03	12.38	1.83	74.99	15.73	9.59	5.57
DRIVER JTJ AVERAGE			23.63	.46	29.51	5.47	1.06	68.48	12.70	1.44	92.39	17.13	10.24	5.28
DRIVER RKH AVERAGE			25.19	.39	20.99	4.87	.88	53.39	12.65	1.12	68.02	16.12	9.64	5.54

TABLE A-4. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D4, 1971 WHITE /CUMMINS 855 CID I6, 58000 LB. GVW, 250 CUMMINS

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL WT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
2-12-74	1	JTJ	23.84	1.20	4.10	4.52	2.61	8.89	9.80	3.83	13.04	14.38	11.00	4.82
2-12-74	2	JTJ	23.18	.85	4.38	4.72	1.70	8.74	9.48	2.60	13.44	14.49	11.54	4.63
2-12-74	3	JTJ	21.33	1.00	4.65	4.96	1.94	8.99	9.57	2.83	13.14	14.00	11.04	4.84
2-12-74	4	RKH	22.44	.43	3.94	4.77	.95	8.73	10.57	1.28	11.74	14.21	10.15	5.26
2-13-74	7	JJC	23.77	.62	4.98	4.82	1.30	10.40	10.07	1.95	15.68	15.17	11.38	4.69
2-13-74	8	JJC	22.93	.79	4.16	4.65	1.66	8.75	9.78	2.39	12.64	14.14	10.91	4.89
2-13-73	9	JJC	25.17	.84	5.38	5.14	1.83	11.65	11.23	2.81	17.92	17.24	11.62	4.59
OVERALL AVERAGE			23.25	.82	4.51	4.80	1.71	9.46	10.07	2.53	13.99	14.81	11.09	4.82
DRIVER JTJ AVERAGE			22.79	1.02	4.38	4.73	2.08	8.89	9.62	3.09	13.21	14.29	11.19	4.76
DRIVER RKH AVERAGE			22.44	.43	3.94	4.77	.95	8.73	10.57	1.28	11.74	14.21	10.15	5.26
DRIVER JJC AVERAGE			23.96	.75	4.89	4.89	1.59	10.27	10.36	2.39	15.42	15.53	11.30	4.73

TABLE A-5. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D-5, 1974 INTERNATIONAL 636 CID V8, 58000 LB. GVW, 1160 CATERPILLA

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL MT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
2-20-74	1	RKH	24.72	1.09	3.33	4.11	2.91	8.90	10.99	3.56	10.90	13.47	9.25	5.77
2-20-74	2	RKH	24.08	1.25	3.03	3.84	3.64	8.79	11.13	4.00	9.67	12.23	8.30	6.43
2-20-74	3	RKH	21.97	1.33	4.30	4.49	3.26	10.52	10.97	3.88	12.52	13.06	8.99	5.94
2-20-74	4	RTH	21.55	1.29	3.43	4.11	3.32	8.83	10.59	3.68	9.79	11.74	8.37	6.38
2-20-74	5	RTH	23.83	1.34	3.30	4.32	3.69	9.05	11.85	4.24	10.41	13.62	8.68	6.15
2-21-74	7	JGC	21.90	1.38	4.38	5.15	3.01	9.54	11.21	3.92	12.42	14.59	9.83	5.43
2-21-74	8	JGC	24.90	1.36	3.71	4.59	3.40	9.27	11.48	4.49	12.23	15.15	9.96	5.36
2-29-74	9	JGC	23.45	1.32	3.74	4.32	2.86	8.12	9.37	4.09	11.63	13.42	10.82	4.93
OVERALL AVERAGE			23.24	1.30	3.65	4.37	3.26	9.13	10.95	3.98	11.20	13.41	9.2	5.80
DRIVER RKH AVERAGE			23.59	1.23	3.55	4.15	3.27	9.40	11.03	3.82	11.03	12.92	8.85	6.05
DRIVER RTH AVERAGE			22.69	1.32	3.36	4.21	3.50	8.94	11.22	3.96	10.10	12.68	8.53	6.27
DRIVER JGC AVERAGE			23.25	1.35	3.94	4.69	3.09	8.98	10.69	4.17	12.09	14.39	10.20	5.24

TABLE A-6. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D6, 1973 MACK/MACK 672 CID V8, 72000 LB. GVW, ENG. 676B

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL MT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
3- 1-74	2	JGC	23.56	.46	4.45	7.03	.95	9.23	14.58	1.43	13.87	21.93	11.35	4.70
3- 1-74	3	JGC	22.46	.48	4.67	6.77	.95	9.21	13.35	1.43	13.86	20.13	11.38	4.69
3- 4-74	7	RKH	23.76	.33	4.51	6.44	.70	9.70	13.84	1.02	14.20	20.28	11.06	4.83
3- 4-74	8	RKH	24.43	.41	4.03	6.47	.88	8.65	13.90	1.33	13.03	20.93	11.37	4.70
3- 4-74	9	RKH	27.15	.46	4.08	6.00	1.09	9.69	14.25	1.65	14.66	21.60	11.44	4.67
3- 8-74	1	JTJ	21.68	.65	4.40	6.74	1.34	9.13	13.96	1.86	12.65	19.35	10.46	5.10
3- 8-74	2	JTJ	22.05	.52	4.14	6.65	.97	7.70	12.37	1.52	12.09	19.42	11.85	4.51
OVERALL AVERAGE			23.58	.47	4.32	6.59	.98	9.04	13.75	1.46	13.48	20.52	11.27	4.74
DRIVER JGC AVERAGE			23.01	.47	4.56	6.90	.95	9.22	13.97	1.43	13.[illegible]	21.03	11.36	4.70
DRIVER RKH AVERAGE			25.11	.40	4.21	6.31	.89	9.34	14.00	1.34	13.96	20.43	11.29	4.73
DRIVER JTJ AVERAGE			21.86	.58	4.27	6.69	1.15	8.41	13.17	1.69	12.37	19.38	11.15	4.81

TABLE A-7. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. 07, 1973 MACK/DD RV-71 568 CID V8, 72000 LB. GVW,

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL WT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
3- 6-74	3	JTJ	24.42	.86	8.54	8.70	1.45	14.42	14.67	2.83	28.09	28.58	14.71	3.63
3- 6-74	4	JTJ	22.21	.96	7.87	10.11	1.67	13.71	17.62	2.81	23.14	29.74	12.74	4.19
3- 6-74	5	RKM	22.13	.92	9.28	9.32	1.58	15.95	16.02	2.69	27.14	27.31	12.87	4.15
3- 6-74	6	RKM	22.73	1.02	8.81	9.09	1.80	15.47	15.97	3.08	26.51	27.37	12.94	4.13
3- 6-74	7	RKM	21.95	.97	10.60	9.52	1.73	18.87	16.94	2.83	30.82	27.67	12.33	4.33
3- 7-74	8	JGC	21.91	.71	6.85	9.84	1.19	11.42	16.40	2.07	19.89	28.56	13.15	4.06
3- 7-74	9	JGC	24.74	.90	7.56	8.65	1.60	13.40	15.33	2.96	24.78	28.35	13.96	3.82
3- 7-74	10	JGC	23.34	.87	10.58	8.77	1.54	18.74	15.54	2.69	32.73	27.13	13.14	4.05
OVERALL AVERAGE			22.98	.90	8.76	9.25	1.57	15.25	16.06	2.75	26.64	28.09	13.24	4.04
DRIVER JTJ AVERAGE			23.52	.91	8.21	9.40	1.56	14.07	16.15	2.82	25.62	29.16	13.72	3.91
DRIVER RKM AVERAGE			22.27	.97	9.56	9.31	1.70	16.76	16.31	2.87	28.17	27.45	12.71	4.20
DRIVER JGC AVERAGE			23.34	.83	8.33	9.09	1.44	14.52	15.75	2.57	25.80	28.02	13.43	3.98

TABLE A-8. EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. 08, 1970 MACK/MACK 673B 672 CID I6, 58000 LB. GVW, TRACTOR

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL WT LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
3-12-74	2	JTJ	26.26	2.73	3.52	8.21	6.83	8.82	20.55	9.48	12.25	28.55	10.49	5.09
3-12-74	5	RKM	22.23	2.87	3.69	8.88	6.32	8.14	19.59	8.44	10.86	26.13	10.07	5.30
3-13-74	9	JGC	21.57	2.80	3.26	10.09	6.32	7.36	22.77	8.00	9.33	28.83	9.56	5.59
3-15-74	1	JTJ	23.44	3.30	2.74	9.23	7.61	6.33	21.31	10.24	8.51	28.64	10.15	5.26
3-15-74	2	JTJ	22.72	3.30	3.16	9.16	7.35	7.06	20.43	9.92	9.52	27.57	10.19	5.24
3-15-74	3	RKM	21.83	3.29	3.58	9.33	7.06	7.70	20.04	9.51	10.36	26.97	10.16	5.26
3-15-74	4	RKM	22.26	2.42	4.03	8.86	6.54	9.01	19.81	8.61	11.87	26.11	9.95	5.37
3-15-74	5	JGC	22.71	2.78	3.26	10.60	6.03	7.07	22.97	8.37	9.82	31.89	10.48	5.09
3-15-74	6	JGC	23.26	2.78	3.47	9.32	6.34	7.93	21.29	8.56	10.70	28.73	10.19	5.24
OVERALL AVERAGE			22.92	2.97	3.41	9.30	6.71	7.71	20.97	9.01	10.36	28.16	10.14	5.27
DRIVER JTJ AVERAGE			24.14	3.11	3.14	8.87	7.26	7.40	20.76	9.88	10.10	28.26	10.28	5.20
DRIVER RKM AVERAGE			22.11	3.02	3.77	9.02	6.64	8.28	19.82	8.85	11.03	26.40	10.06	5.31
DRIVER JGC AVERAGE			22.52	2.79	3.33	10.00	6.23	7.45	22.34	8.31	9.95	29.82	10.08	5.31

TABLE A-9 EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. 09, 1973 MACK/CUMMINS 855 CID I6, 72000 LB. GVW, NTC 290 TRACTOR

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL MI LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
[illegible]	2	JTJ	22.73	1.23	5.13	7.25	2.03	8.48	11.99	3.70	15.44	21.84	13.75	3.88
[illegible]	3	JTJ	21.68	1.21	7.17	9.15	1.77	10.47	13.38	3.48	20.57	26.28	14.83	3.60
[illegible]	4	MKM	20.88	.73	7.47	7.71	1.06	10.93	11.29	2.01	20.66	21.33	14.27	3.74
[illegible]	5	MKM	23.23	.96	6.82	7.86	1.61	11.49	13.24	2.95	20.98	24.18	13.79	3.87
[illegible]	6	MKM	21.61	.85	5.79	9.88	1.27	8.64	14.75	2.44	16.56	28.28	14.98	3.69
[illegible]	7	JGC	23.87	1.10	7.29	9.25	1.81	12.18	15.46	3.49	23.04	29.24	14.28	3.74
[illegible]	8	JGC	22.32	.86	6.26	9.06	1.43	10.37	15.01	2.55	18.52	26.80	13.98	3.96
[illegible]	9	JGC	23.61	.96	6.73	8.66	1.61	11.30	14.54	3.01	21.06	27.09	14.07	3.79
		OVERALL AVERAGE	22.44	.99	6.58	8.60	1.58	10.48	13.70	2.95	19.60	25.63	14.12	3.78
		DRIVER JTJ AVERAGE	22.21	1.82	6.15	8.20	1.90	9.48	12.68	3.59	18.01	24.06	14.29	3.74
		DRIVER MKM AVERAGE	21.91	.85	6.69	8.48	1.32	10.35	13.09	2.47	19.40	24.60	14.18	3.77
		DRIVER JGC AVERAGE	23.27	.98	6.76	8.99	1.63	11.28	15.00	3.02	20.87	27.71	13.98	3.83

TABLE A-10 EXHAUST EMISSIONS SUMMARY, SAN ANTONIO ROAD ROUTE
TRUCK NO. D10, 1970 FORD/DD 6V-53 212 CID I4, 17000 LB. GVW, ROA VAN

DATE	RUN	DRIVER	RUN DURATION MINUTES	GRAMS PER MINUTE			GRAMS PER LB OF FUEL			GRAMS PER MILE			FUEL MI LB	MILES PER GAL
				HC	CO	NOX	HC	CO	NOX	HC	CO	NOX		
[illegible]	1	JGC	23.14	.86	9.15	4.50	3.12	33.27	16.36	2.63	28.07	13.80	6.37	8.36
[illegible]	2	JGC	22.16	1.10	10.66	4.36	3.86	37.55	15.36	3.22	31.28	12.80	6.29	8.49
[illegible]	3	JGC	24.31	.91	10.19	4.03	3.21	35.73	14.21	2.93	32.65	12.98	6.90	7.74
[illegible]	4	JTJ	25.48	.92	15.94	3.83	3.39	58.62	14.09	3.11	53.80	12.93	6.93	7.70
[illegible]	5	JTJ	23.21	1.18	9.16	3.66	4.01	31.04	12.40	3.63	28.16	11.25	6.65	7.79
[illegible]	6	JTJ	23.58	.99	12.22	3.69	3.57	43.95	13.26	3.10	38.18	11.52	6.56	8.14
[illegible]	7	MKM	23.09	.91	14.35	3.76	3.28	51.76	13.54	2.78	43.88	11.48	6.90	8.34
[illegible]	8	MKM	23.48	.96	18.87	3.53	3.79	76.24	14.26	2.41	58.67	10.97	5.81	9.19
[illegible]	9	MKM	24.29	1.01	16.48	3.64	3.76	60.01	13.25	3.26	53.02	11.70	6.67	8.01
		OVERALL AVERAGE	23.69	.98	13.00	3.89	3.55	47.57	14.08	3.06	40.86	12.14	6.53	8.20
		DRIVER JGC AVERAGE	23.21	.96	9.98	4.30	3.40	35.51	15.31	2.93	30.67	13.19	6.52	8.20
		DRIVER JTJ AVERAGE	24.09	1.03	12.44	3.73	3.65	44.53	13.25	3.28	40.05	11.90	6.78	7.88
		DRIVER MKM AVERAGE	23.62	.95	16.56	3.64	3.59	62.67	13.68	2.99	51.86	11.38	6.23	8.51

APPENDIX B

GASEOUS EMISSIONS DATA
BY
CHASSIS VERSION OF 13-MODE
FEDERAL TEST PROCEDURE
FOR
HD DIESEL ENGINES

TABLE B-1. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0=1, 1972 FORD/CAT 1150 473 CID V8 24000 LB. GVW, BOX VAN
12-26-73 RUN 3

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	666	0.0	0.0	.05	8.67	8.72	.006
2	1800	8.2	2.8	.15	18.93	19.09	.008
3	1800	103.6	35.5	.28	19.71	19.98	.014
4	1800	207.2	71.0	.44	19.77	20.21	.022
5	1800	310.7	106.5	.63	19.00	19.62	.033
6	1800	414.3	142.0	.89	19.45	20.34	.046
7	665	0.0	0.0	.04	8.73	8.77	.004
8	3000	283.6	162.0	1.07	28.99	30.06	.037
9	3000	211.8	121.0	.65	29.65	30.30	.022
10	3000	141.8	81.0	.65	29.65	30.30	.022
11	3000	70.9	40.5	.47	29.47	29.95	.016
12	3000	5.6	3.2	.37	29.47	29.84	.012
13	665	0.0	0.0	.04	8.50	8.54	.005

MODE	HC PPM	CO* PPM	NO** PPM	WEIGHTED BHP	BSHC G/HP-HR	BSCO* G/HP-HR	BSNO** G/HP-HR	A/F LB/LB
1	328	429	418	0.00	-	-	-	24.1
2	969	359	101	.22	41.28	64.45	35.7	24.1
3	524	348	271	2.84	3.89	5.84	1.58	24.0
4	699	292	553	5.68	2.92	2.18	6.8	24.0
5	760	226	847	8.52	1.65	1.09	7.26	24.0
6	728	2124	980	11.36	1.39	8.10	6.56	32.7
7	349	271	147	0.00	-	-	-	32.7
8	752	1286	657	12.96	1.89	6.28	5.69	32.7
9	629	696	525	7.68	2.08	5.44	5.71	32.7
10	616	683	367	6.48	1.08	6.26	5.83	28.7
11	592	538	233	3.29	5.28	17.47	7.44	28.7
12	769	502	141	.26	98.50	123.02	58.65	28.7
13	349	276	113	0.00	-	-	-	28.7

CYCLE COMPOSITE BSHC = 2.999 GRAM/BHP-HR
BSCO* = 6.617 GRAM/BHP-HR
BSNO2** = 6.607 GRAM/BHP-HR
BSHC + BSNO2** = 9.555 GRAM/BHP-HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2* PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.63	1.26	.79	0.00
2			1.95	3.01	1.67	0.00
3			2.30	3.98	3.89	0.00
4			2.86	2.58	8.05	0.00
5			3.28	1.99	12.59	0.00
6			3.26	18.99	14.35	0.00
7			.66	1.09	.93	0.00
8			9.97	16.95	19.21	0.00
9			9.19	11.98	11.52	0.00
10			9.13	9.13	8.06	0.00
11			3.90	7.07	5.02	0.00
12			5.15	6.56	3.02	0.00
13			.65	1.03	.69	0.00

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
R	R	
W	3.32	
R	.97	
R	.37	
R	.35	
R	.37	
R	R	
W	.90	
R	.92	
R	.99	
R	.70	
R	6.87	
R	R	

CYCLE COMPOSITE HC = 3.71 G/MIN.
CO = 6.75 G/MIN.
NO2 = 6.79 G/MIN.
CYCLE COMPOSITE HC = 6.37 G/LB. OF FUEL
CO = 14.30 G/LB. OF FUEL
NO2 = 14.28 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 28.34 LB/HR
WEIGHTED HORSEPOWER = 61.29
WEIGHTED BSFC = .463

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-2. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-1, 1972 FORD/CAT 1150 573 CID V8 24000 LB. GVW, BOX VAN
12-26-73 RUN 4

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	665	0.0	0.0	.05	8.95	8.99	.006
2	1800	8.2	2.8	.15	18.76	18.91	.008
3	1800	103.6	35.5	.27	19.14	19.96	.014
4	1800	207.2	71.0	.44	18.82	19.26	.023
5	1800	310.7	106.5	.63	19.26	19.88	.033
6	1800	919.3	192.0	.88	19.00	19.88	.046
7	665	0.0	0.0	.04	8.50	8.54	.005
8	3000	283.6	162.0	1.07	28.61	29.68	.037
9	3000	211.8	121.0	.66	29.07	29.73	.023
10	3000	141.8	81.0	.46	29.07	29.73	.023
11	3000	70.9	40.5	.47	29.07	29.54	.016
12	3000	5.6	3.2	.36	28.61	28.97	.013
13	665	0.0	0.0	.04	8.36	8.41	.005

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	MPG GM/LB
1	299	298	96	0.00	*	*	*	27.0
2	972	287	102	.22	92.07	51.09	29.78	27.0
3	536	348	571	2.84	3.88	5.01	13.52	27.0
4	709	257	521	5.68	2.52	1.83	6.10	27.0
5	800	206	830	8.52	1.92	1.01	5.64	27.0
6	709	2126	964	11.36	1.36	7.83	5.03	22.4
7	292	294	134	0.00	*	*	*	22.4
8	960	1328	613	12.96	2.32	6.90	4.85	22.9
9	789	880	526	9.66	2.56	5.72	5.65	22.9
10	560	673	393	6.44	2.71	6.50	6.24	44.6
11	788	536	237	3.29	7.59	10.24	7.46	44.6
12	1000	995	142	.26	119.51	117.83	55.40	44.6
13	376	262	109	0.00	*	*	*	44.6

CYCLE COMPOSITE BSHC = 3.279 GRAM/BHP HR
BSCO+ = 6.362 GRAM/BHP HR
BSNO2++= 6.655 GRAM/BHP HR
BSHC + BSNO2++= 4.934 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.96	1.11	.58	0.00
2			1.96	2.38	1.39	0.00
3			2.29	2.97	8.00	0.00
4			2.98	2.17	7.22	0.00
5			3.50	1.80	11.88	0.00
6			3.08	18.53	13.80	0.00
7			.55	.91	.83	0.00
8			6.27	17.28	13.10	0.00
9			5.16	11.59	11.38	0.00
10			3.66	8.78	8.42	0.00
11			5.12	6.94	5.03	0.00
12			6.37	6.28	2.95	0.00
13			.70	.96	.66	0.00

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	*	
2	3.25	
3	.45	
4	.37	
5	.35	
6	.37	
7	*	
8	.43	
9	.43	
10	.44	
11	.20	
12	6.25	
13	*	

CYCLE COMPOSITE HC = 3.35 G/MIN.
CO = 6.44 G/MIN.
NO2 = 6.74 G/MIN.
CYCLE COMPOSITE HC = 2.09 G/LB. OF FUEL
CO = 11.26 G/LB. OF FUEL
NO2 = 14.39 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 64.32 LB/HR
WEIGHTED HC-SEMPLER = 51.64
WEIGHTED BSFC = .462

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-3. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-2, 1970 IHC/CAT V903 903 CID V8 15+10 LB. GVW, TRACTOR
1-21-70 TEST 1

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	700	0.0	0.0	.09	9.37	9.91	.008
2	1800	0.0	0.0	.23	15.84	16.08	.015
3	1800	189.7	65.0	.97	15.79	16.20	.030
4	1800	367.6	126.0	.79	15.69	16.93	.051
5	1800	528.1	181.0	1.12	15.53	16.65	.072
6	1800	703.2	241.0	1.57	14.63	16.20	.107
7	700	0.0	0.0	.03	3.96	3.99	.008
8	2600	666.5	325.0	2.24	24.43	26.67	.092
9	2600	599.9	295.0	1.60	23.44	25.05	.068
10	2600	327.2	162.0	1.13	23.58	24.72	.048
11	2600	161.6	80.0	.73	24.53	25.26	.030
12	2600	0.0	0.0	.47	24.40	24.87	.019
13	700	0.0	0.0	.03	9.92	9.96	.003

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	66	107	63	0.00	R	R	R	36.0
2	88	126	81	0.00	R	R	R	36.0
3	84	126	264	5.20	.28	.83	2.85	36.0
4	80	117	673	10.08	.14	.40	3.79	36.0
5	96	144	1193	14.48	.12	.83	4.74	48.0
6	48	2804	1448	19.28	.09	4.96	4.35	48.0
7	68	87	47	0.00	R	R	R	48.0
8	52	2052	1272	24.00	.06	4.93	4.51	48.0
9	98	918	1039	19.60	.13	1.12	4.59	48.0
10	76	163	700	12.96	.15	.66	4.62	42.0
11	68	159	330	6.40	.24	1.28	4.49	42.0
12	128	169	152	0.00	R	R	R	42.0
13	78	95	90	0.00	R	R	R	42.0

CYCLE COMPOSITE BSHC = .185 GRAM/BHP HR
BSCO+ = 2.501 GRAM/BHP HR
BSNO2++= 4.578 GRAM/BHP HR
BSHC + BSNO2++= 4.764 GRAM/BHP HR

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.06	.21	.20	
2			.91	.89	.93	
3			.30	.89	3.08	
4			.29	.84	7.45	
5			.35	2.51	10.30	
6			.17	19.91	17.97	
7			.06	.15	.28	
8			.31	23.99	24.93	
9			.54	9.58	18.74	
10			.91	1.77	12.96	
11			.38	1.70	5.99	
12			.20	1.85	2.72	
13			.08	.18	.29	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.14	R
2	1.13	R
3	2.24	.431
4	3.80	.377
5	5.33	.371
6	7.53	.390
7	.13	R
8	10.74	.413
9	7.68	.392
10	5.44	.420
11	3.52	.550
12	2.24	R
13	.13	R

CYCLE COMPOSITE HC = .31 G/MIN.
CO = 9.35 G/MIN.
NO2 = 8.20 G/MIN.
CYCLE COMPOSITE HC = .38 G/LB. OF FUEL
CO = 5.69 G/LB. OF FUEL
NO2 = 10.41 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 50.11 LB/HR
WEIGHTED HORSEPOWER = 114.00
WEIGHTED BSFC = .440

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-4. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-2, 1970 IHC/CAT V903 903 CID V8 15910 LB. GVW, TRACTOR
1-21-74 TEST 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	700	0.0	0.0	.03	9.61	9.64	.003
2	1800	0.0	0.0	.23	16.10	16.34	.014
3	1800	183.8	63.0	.46	15.84	16.30	.029
4	1800	364.7	125.0	.72	15.79	16.51	.045
5	1800	531.0	182.0	1.12	15.19	16.31	.072
6	1800	703.2	241.0	1.57	15.34	16.91	.102
7	700	0.0	0.0	.03	9.03	9.06	.008
8	2600	656.5	325.0	2.25	24.05	26.30	.094
9	2600	490.9	243.0	1.60	23.67	25.27	.068
10	2600	331.3	164.0	1.15	24.30	25.44	.047
11	2600	161.6	80.0	.72	24.84	25.57	.029
12	2600	0.0	0.0	.46	23.96	24.42	.019
13	700	0.0	0.0	.03	9.32	9.36	.008

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	NUM. GR/LB
1	58	107	63	0.00	R	R	R	36.0
2	42	138	68	0.00	R	R	R	34.3
3	84	138	264	5.09	.29	.94	2.95	34.3
4	86	133	687	10.00	.15	.46	3.94	34.3
5	118	335	1231	14.56	.14	.81	4.91	48.0
6	66	2902	1546	19.28	.06	5.35	4.68	48.0
7	78	107	111	0.00	R	R	R	48.0
8	60	2044	1240	26.00	.06	4.35	4.33	48.0
9	126	477	1032	19.44	.17	1.31	4.63	48.0
10	84	180	717	13.12	.17	.73	4.91	42.0
11	104	158	330	6.90	.44	1.32	4.56	42.0
12	184	173	152	0.00	R	R	R	42.0
13	112	95	90	0.00	R	R	R	42.0

CYCLE COMPOSITE BSHC = .207 GRAM/BHP HR
BSCO+ = 2.609 GRAM/BHP HR
BSNO2++= 4.664 GRAM/BHP HR
BSHC + BSNO2++= 4.872 GRAM/BHP HR

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.06	.22	.21	
2			.33	.99	.80	
3			.30	.99	3.10	
4			.31	.96	8.20	
5			.99	2.97	14.90	
6			.25	21.51	18.82	
7			.07	.19	.32	
8			.35	23.56	23.97	
9			.20	5.29	18.77	
10			.97	2.00	13.19	
11			.58	1.77	6.09	
12			.99	1.85	2.68	
13			.11	.18	.29	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.13	R
2	1.12	R
3	2.20	.437
4	3.76	.376
5	5.40	.371
6	7.53	.390
7	.13	R
8	10.80	.415
9	7.68	.395
10	5.51	.420
11	3.48	.549
12	2.22	R
13	.13	R

CYCLE COMPOSITE HC = .39 G/MIN.
CO = 9.95 G/MIN.
NO2 = 8.85 G/MIN.
CYCLE COMPOSITE HC = .97 G/LB. OF FUEL
CO = 5.93 G/LB. OF FUEL
NO2 = 10.60 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 50.11 LB/HR
WEIGHTED HORSEPOWER = 113.84
WEIGHTED BSFC = .440

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-5. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-2, 1970 IHC/CAT V903 903 CID V8 15910 LB. GVW, TRACTOR
1-21-74 TEST 3

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	700	0.0	0.0	.03	0.64	0.67	.007
2	1800	0.0	0.0	.21	16.87	17.08	.012
3	1800	189.7	65.0	.67	16.93	17.39	.028
4	1800	369.7	125.0	.78	15.73	16.52	.050
5	1800	519.4	178.0	1.10	15.52	16.63	.071
6	1800	700.3	240.0	1.56	14.52	16.09	.108
7	700	0.0	0.0	.03	3.97	0.01	.008
8	2600	652.5	323.0	2.23	24.42	26.65	.091
9	2600	699.9	245.0	1.62	23.96	25.57	.068
10	2600	331.3	164.0	1.15	23.65	24.80	.048
11	2600	161.6	80.0	.73	24.25	25.99	.030
12	2600	0.0	0.0	.96	24.03	24.99	.019
13	700	0.0	0.0	.03	0.35	0.38	.008

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	H/M, GR/LB
1	70	111	58	0.00	W	R	R	71.8
2	74	138	76	0.00	W	R	W	71.8
3	106	130	262	5.20	.37	.92	3.03	71.8
4	102	121	666	10.00	.18	.42	3.80	71.8
5	154	334	1226	14.24	.19	.82	4.95	67.2
6	70	2823	1560	19.20	.06	4.98	4.52	67.2
7	84	102	116	0.00	R	R	R	67.2
8	60	2018	1308	25.84	.07	4.38	4.66	67.2
9	114	439	1066	19.60	.16	1.21	4.81	67.2
10	78	167	700	13.12	.16	.66	4.57	37.1
11	94	154	326	6.40	.40	1.29	4.99	37.1
12	162	165	151	0.00	R	R	R	37.1
13	102	95	89	0.00	W	R	R	37.1

CYCLE COMPOSITE BSHC = .207 GRAM/BHP HR
BSCO+ = 2.515 GRAM/BHP HR
BSNO2++= 4.708 GRAM/BHP HR
BSHC + BSNO2++= 4.914 GRAM/BHP HR

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.07	.22	.19	
2			.28	1.03	.93	
3			.91	.99	3.28	
4			.37	.87	7.92	
5			.56	2.99	14.68	
6			.25	19.91	18.07	
7			.07	.18	.33	
8			.35	23.57	25.09	
9			.69	4.92	19.63	
10			.93	1.81	12.50	
11			.53	1.72	5.99	
12			.87	1.77	2.66	
13			.10	.18	.29	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.13	R
2	1.00	R
3	2.25	.432
4	3.76	.376
5	5.29	.371
6	7.50	.391
7	.13	R
8	10.70	.414
9	7.78	.397
10	5.50	.420
11	3.52	.550
12	2.21	R
13	.13	R

CYCLE COMPOSITE HC = .39 G/MIN.
CO = 4.26 G/MIN.
NO2 = 8.91 G/MIN.
CYCLE COMPOSITE HC = .47 G/LB. OF FUEL
CO = 5.22 G/LB. OF FUEL
NO2 = 10.71 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 49.91 LB/HR
WEIGHTED HORSEPOWER = 113.60
WEIGHTED BSFC = .439

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-6. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-3, 1971 IH/DETROIT DIESEL 6-71, 426 CID 16, 58000 LB GVW TRACTOR
1-28-74 RUN 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	526	0.0	0.0	.09	11.03	11.07	.009
2	1600	0.0	0.0	.19	35.16	35.34	.005
3	1600	147.7	45.0	.37	35.04	35.41	.010
4	1600	308.6	94.0	.62	35.16	35.77	.018
5	1600	459.5	140.0	.88	34.58	35.46	.025
6	1600	613.8	187.0	1.31	33.14	34.45	.040
7	526	0.0	0.0	.09	10.92	10.96	.009
8	2100	590.2	236.0	1.62	44.53	46.15	.036
9	2100	437.7	175.0	1.12	44.25	45.37	.025
10	2100	287.6	115.0	.80	44.22	45.02	.018
11	2100	140.1	56.0	.51	44.64	45.15	.011
12	2100	0.0	0.0	.31	45.07	45.38	.007
13	526	0.0	0.0	.09	10.91	10.95	.009

MODE	HC PPM	CO* PPM	NO** PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO* G/HP HR	BSNO2** G/HP HR	HUM. GR/LB
1	39	80	192	0.00	R	R	R	24.2
2	34	91	191	0.00	R	R	R	24.2
3	38	47	383	3.60	.39	.97	13.03	24.2
4	50	50	760	7.52	.25	.50	12.50	24.2
5	80	205	1157	11.20	.27	1.36	12.66	25.2
6	90	5535	880	14.96	.22	26.82	7.00	25.2
7	49	672	237	0.00	R	R	R	25.2
8	86	5572	963	18.88	.22	28.66	8.14	25.2
9	65	209	1038	14.00	.22	1.43	11.63	25.2
10	58	65	685	9.20	.30	.67	11.59	23.6
11	57	51	386	4.48	.61	1.07	13.43	23.6
12	62	67	149	0.00	R	R	R	23.6
13	57	67	222	0.00	R	R	R	23.6

CYCLE COMPOSITE BSHC = .33* GRAM/BHP HR
BSCO* = 12.222 GRAM/BHP HR
BSNO2**= 11.199 GRAM/BHP HR
BSHC + BSNO2**= 11.534 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2* PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.09	.39	1.53	
2			.26	1.42	3.60	
3			.30	.73	9.78	
4			.39	.78	19.58	
5			.62	3.18	29.54	
6			.68	83.59	21.83	
7			.12	3.23	1.07	
8			.87	42.71	32.00	
9			.65	4.17	33.91	
10			.57	1.29	22.21	
11			.57	1.00	12.54	
12			.62	1.33	6.33	
13			.19	.32	1.75	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.17	R
2	.90	R
3	1.76	.489
4	2.96	.394
5	4.22	.377
6	6.30	.421
7	.16	R
8	7.77	.411
9	5.40	.386
10	3.83	.417
11	2.45	.546
12	1.48	R
13	.16	R

CYCLE COMPOSITE HC = .47 G/MIN.
CO = 17.08 G/MIN.
NO2 = 15.65 G/MIN.
CYCLE COMPOSITE HC = .75 G/LB. OF FUEL
CO = 27.28 G/LB. OF FUEL
NO2 = 25.00 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 37.56 LB/HR
WEIGHTED BRSEPOWER = 83.84
WEIGHTED BSFC = .448

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-7. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-3, 1971 IH/DETROIT DIESEL 6-71, 426 CID I6, 58000 LB GCW TRACTOR
1-28-74 RUN 3

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	526	0.0	0.0	.09	11.01	11.05	.009
2	1600	0.0	0.0	.19	35.31	35.50	.005
3	1600	199.9	99.0	.36	35.31	35.67	.010
4	1600	305.3	93.0	.61	34.20	34.81	.018
5	1600	459.5	140.0	.87	34.21	35.08	.026
6	1600	610.5	186.0	1.31	33.99	35.30	.038
7	526	0.0	0.0	.09	10.77	10.81	.009
8	2100	590.2	236.0	1.59	95.06	96.60	.034
9	2100	437.7	175.0	1.12	95.98	96.60	.025
10	2100	287.6	115.0	.80	94.34	95.14	.018
11	2100	140.1	56.0	.51	94.63	95.14	.011
12	2100	0.0	0.0	.31	95.06	95.37	.007
13	526	0.0	0.0	.09	10.84	10.88	.009

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	34	75	176	0.00	R	R	R	17.8
2	33	88	136	0.00	R	R	R	17.8
3	37	51	396	3.52	.90	1.08	12.13	17.8
4	44	54	702	7.44	.22	.53	11.35	17.8
5	68	226	1087	11.20	.22	1.49	11.76	22.6
6	71	5552	845	14.88	.18	27.71	6.93	22.6
7	41	67	225	0.00	R	R	R	22.6
8	71	5599	936	18.88	.19	29.08	7.96	22.6
9	67	184	982	14.00	.24	1.29	11.29	22.6
10	54	58	653	9.20	.28	.59	11.07	22.6
11	53	51	378	4.48	.56	1.07	13.16	22.6
12	58	71	197	0.00	R	R	R	22.6
13	56	71	215	0.00	R	R	R	22.6

CYCLE COMPOSITE BSHC = .303 GRAM/BHP HR
BSCO+ = 12.338 GRAM/BHP HR
BSNO2++= 10.750 GRAM/BHP HR
BSHC + BSNO2++= 11.053 GRAM/BHP HR

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.08	.36	1.90	
2			.26	1.36	3.98	
3			.29	.79	8.90	
4			.39	.82	17.60	
5			.52	3.47	27.65	
6			.55	85.89	21.98	
7			.10	.32	1.75	
8			.73	99.38	31.41	
9			.69	3.77	32.93	
10			.54	1.19	21.22	
11			.53	1.00	12.29	
12			.58	1.90	6.93	
13			.13	.39	1.68	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.17	R
2	.90	R
3	1.79	.993
4	2.93	.399
5	4.20	.375
6	6.27	.422
7	.17	R
8	7.42	.393
9	5.39	.385
10	3.82	.416
11	2.45	.546
12	1.48	R
13	.17	R

CYCLE COMPOSITE HC = .42 G/MIN.
CO = 17.19 G/MIN.
NO2 = 14.98 G/MIN.
CYCLE COMPOSITE HC = .68 G/LB. OF FUEL
CO = 27.81 G/LB. OF FUEL
NO2 = 24.23 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 33.09 LB/HR
WEIGHTED HORSEPOWER = 83.60
WEIGHTED BSFC = .396

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-8. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-4, 1970 WHITE/CUMMINS 250, 855 CID I6, 58000 LB. GC+ TRACTOR
2-14-74 TEST 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	650	0.0	0.0	.03	9.30	9.39	.004
2	1500	0.0	0.0	.17	23.95	24.12	.007
3	1500	185.6	53.0	.37	23.03	23.40	.016
4	1500	360.6	103.0	.69	22.96	23.40	.028
5	1500	525.2	150.0	.93	22.88	23.81	.040
6	1500	693.3	198.0	1.29	21.83	23.12	.059
7	650	0.0	0.0	.03	9.15	9.19	.004
8	2100	690.2	256.0	1.72	31.82	33.54	.054
9	2100	477.7	191.0	1.21	31.72	32.93	.038
10	2100	312.6	125.0	.82	31.72	32.54	.026
11	2100	167.6	67.0	.52	32.62	33.14	.016
12	2100	0.0	0.0	.28	32.51	32.79	.009
13	650	0.0	0.0	.03	10.03	10.06	.003

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	NUM. GM/LB
1	44	102	69	0.00	R	R	R	86.5
2	46	98	93	0.00	R	R	R	86.5
3	36	100	256	9.29	.21	1.16	9.88	86.5
4	48	184	566	8.29	.15	1.11	5.60	86.5
5	80	373	1209	12.00	.17	1.56	8.26	84.8
6	32	9305	1777	15.29	.05	13.22	8.97	84.8
7	76	79	177	0.00	R	R	R	84.8
8	36	2402	1065	20.48	.06	8.28	6.03	84.8
9	106	482	750	15.28	.29	2.19	5.59	84.8
10	108	189	338	10.00	.37	1.29	3.80	79.4
11	76	180	232	5.36	.50	2.34	4.95	79.4
12	92	122	128	0.00	R	R	R	79.4
13	88	87	79	0.00	R	R	R	79.4

CYCLE COMPOSITE BSHC = .249 GRAM/BHP HR
BSCO+ = 5.391 GRAM/BHP HR
BSNO2++= 6.698 GRAM/BHP HR
BSHC + BSNO2++= 6.942 GRAM/BHP HR

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.09	.42	.96	
2			.29	1.03	1.62	
3			.19	1.02	9.31	
4			.25	1.91	9.62	
5			.42	3.89	20.64	
6			.16	93.64	29.59	
7			.15	.32	1.17	
8			.27	35.31	25.92	
9			.77	6.96	17.78	
10			.77	2.70	7.92	
11			.55	2.61	5.62	
12			.66	1.75	3.02	
13			.19	.38	.57	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.13	R
2	.84	R
3	1.77	.917
4	3.06	.372
5	4.45	.371
6	6.20	.391
7	.13	R
8	8.24	.402
9	5.82	.381
10	3.92	.392
11	2.51	.469
12	1.36	R
13	.13	R

CYCLE COMPOSITE HC = .37 G/MIN,
CO = 8.14 G/MIN,
NO2 = 10.21 G/MIN,
CYCLE COMPOSITE HC = .58 G/LB. OF FUEL
CO = 12.66 G/LB. OF FUEL
NO2 = 15.88 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 38.58 LB/HR
WEIGHTED HORSEPOWER = 91.44
WEIGHTED BSFC = .422

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-4. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0=4, 1970 WHITE/CUMMINS 250, 855 CID I6, 58000 LB, GCW TRACTOR
2-19-74 TEST 3

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	650	0.0	0.0	.03	11.10	11.14	.003
2	1500	0.0	0.0	.16	23.85	24.01	.007
3	1500	185.6	53.0	.37	22.87	23.24	.016
4	1500	360.6	103.0	.64	22.94	23.58	.028
5	1500	525.2	150.0	.93	22.85	23.78	.041
6	1500	693.3	198.0	1.30	22.70	24.00	.057
7	650	0.0	0.0	.03	9.14	9.17	.004
8	2100	637.7	255.0	1.71	30.78	32.49	.055
9	2100	477.7	191.0	1.21	31.68	32.89	.038
10	2100	317.6	127.0	.83	32.68	33.50	.025
11	2100	157.6	63.0	.51	32.57	33.08	.016
12	2100	0.0	0.0	.28	32.57	32.85	.009
13	650	0.0	0.0	.03	10.01	10.05	.003

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	52	91	71	0.00	R	R	R	88.2
2	56	87	100	0.00	R	R	R	88.2
3	46	100	265	9.24	.27	1.15	5.01	88.2
4	48	181	573	8.24	.15	1.09	5.68	88.2
5	84	354	1165	12.00	.18	1.48	7.98	90.0
6	28	4318	1792	15.84	.09	13.77	9.12	90.0
7	80	74	87	0.00	R	R	R	90.0
8	32	2332	1044	20.40	.05	7.81	5.75	90.0
9	100	454	753	15.28	.23	2.06	5.60	90.0
10	72	173	373	10.16	.25	1.20	4.25	101.6
11	76	135	250	5.04	.53	1.87	5.68	101.6
12	84	117	144	0.00	R	R	R	101.6
13	92	80	80	0.00	R	R	R	101.6

CYCLE COMPOSITE BSHC = .233 GRAM/BHP HR
BSCO+ = 5.252 GRAM/BHP HR
BSNO2++= 6.737 GRAM/BHP HR
BSHC + BSNO2++= 6.970 GRAM/BHP HR

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.13	.44	.47	
2			.30	.92	1.73	
3			.24	1.01	4.43	
4			.25	1.87	9.75	
5			.44	3.69	19.45	
6			.15	45.43	30.10	
7			.16	.32	.67	
8			.23	33.21	24.92	
9			.72	6.55	17.82	
10			.53	2.53	8.99	
11			.55	1.96	5.96	
12			.61	1.69	3.91	
13			.20	.35	.68	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.13	R
2	.78	R
3	1.78	.421
4	3.06	.371
5	4.46	.372
6	6.22	.393
7	.13	R
8	8.20	.402
9	5.82	.381
10	3.47	.391
11	2.45	.486
12	1.36	R
13	.13	R

CYCLE COMPOSITE HC = .35 G/MIN.
CO = 2.98 G/MIN.
NO2 = 10.24 G/MIN.
CYCLE COMPOSITE HC = .55 G/LB. OF FUEL
CO = 12.44 G/LB. OF FUEL
NO2 = 15.95 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 38.51 LB/HR
WEIGHTED HORSEPOWER = 91.20
WEIGHTED BSFC = .422

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-10. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO 0-5,197* IH/CAT 1160, 634 CID V8, 58000 LB. GCW TRACTOR
2-22-7* TEST 1

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0,0	0,0	,02	7,42	7,45	,003
2	1700	0,0	0,0	,14	19,34	19,48	,007
3	1700	76,6	24,8	,24	19,34	19,58	,012
4	1700	234,2	75,8	,48	19,34	19,83	,025
5	1700	361,5	117,0	,71	18,25	18,96	,039
6	1700	473,9	153,4	,95	18,31	19,26	,052
7	600	0,0	0,0	,02	8,13	8,15	,003
8	2800	391,1	208,5	1,44	28,26	29,70	,051
9	2800	287,0	153,0	1,03	28,41	29,44	,036
10	2800	178,8	95,3	,73	28,41	29,14	,026
11	2800	21,2	11,3	,37	28,32	28,69	,013
12	2800	0,0	0,0	,35	27,65	27,99	,013
13	600	0,0	0,0	,02	6,16	6,19	,004

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	168	365	101	0,00	R	R	R	19,5
2	248	448	94	0,00	R	R	R	19,5
3	320	448	220	1,98	3,33	9,31	7,50	19,5
4	488	296	566	6,06	1,68	2,04	6,39	21,7
5	516	179	943	9,36	1,10	,76	6,60	21,7
6	448	1475	1010	12,27	,79	9,87	5,48	21,7
7	232	296	139	0,00	R	R	R	21,7
8	112	2187	960	16,68	,21	8,20	5,91	25,8
9	576	830	821	12,24	1,46	9,20	6,83	25,8
10	536	517	563	7,62	2,16	9,16	7,44	25,8
11	472	500	254	,90	15,82	33,42	27,89	25,8
12	456	531	166	0,00	R	R	R	25,8
13	256	295	128	0,00	R	R	R	25,8

CYCLE COMPOSITE BSHC = 1,657 GRAM/BHP HR
BSCO+ = 6,102 GRAM/BHP HR
BSNO2++= 7,101 GRAM/BHP HR
BSHC + BSNO2++= 8,759 GRAM/BHP HR

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			,28	1,14	,54	
2			1,06	3,83	1,32	
3			1,38	3,85	3,10	
4			2,13	2,57	8,07	
5			2,15	1,49	12,87	
6			1,90	12,95	14,00	
7			,92	1,06	,79	
8			,73	28,98	20,54	
9			3,73	10,71	17,41	
10			3,44	6,60	11,82	
11			2,98	6,24	5,25	
12			2,81	6,51	3,34	
13			,35	,80	,57	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	,10	R
2	,68	R
3	1,16	,585
4	2,32	,383
5	3,40	,363
6	4,58	,373
7	,10	R
8	6,92	,415
9	4,96	,405
10	3,50	,460
11	1,76	1,947
12	1,66	R
13	,10	R

CYCLE COMPOSITE HC = 1,85 G/MIN.
CO = 6,83 G/MIN.
NO2 = 7,94 G/MIN.
CYCLE COMPOSITE HC = 3,56 G/LB. OF FUEL
CO = 13,11 G/LB. OF FUEL
NO2 = 15,26 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 31,25 LB/HR
WEIGHTED HORSEPOWER = 67,13
WEIGHTED BSFC = ,465

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-11. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO. D-5, 1974 IH/CAT 1160, 636 CID V8, 58000 LB. GCW TRACTOR
2-22-74 TEST 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.02	2.41	2.44	.003
2	1700	0.0	0.0	.14	19.83	19.97	.007
3	1700	74.1	24.0	.24	19.83	20.07	.012
4	1700	229.5	74.3	.48	18.89	19.37	.025
5	1700	361.5	117.0	.71	18.77	19.48	.038
6	1700	473.9	153.4	.95	18.53	19.48	.051
7	600	0.0	0.0	.02	7.42	7.44	.003
8	2800	393.9	210.0	1.45	28.07	29.52	.052
9	2800	286.2	152.6	1.03	28.22	29.25	.037
10	2800	173.1	92.3	.72	28.40	29.11	.025
11	2800	21.2	11.3	.37	28.31	28.67	.013
12	2800	0.0	0.0	.35	29.13	29.48	.012
13	600	0.0	0.0	.02	6.93	6.96	.004

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	W.M. GR/LB
1	192	380	25	0.00	R	R	R	18.4
2	320	458	69	0.00	R	R	R	18.4
3	400	454	180	1.92	9.42	9.98	6.49	18.4
4	558	295	492	5.84	1.92	2.02	5.54	18.4
5	578	175	821	9.36	1.27	.77	5.91	7.6
6	416	1706	878	12.27	.70	5.70	4.81	7.6
7	272	323	117	0.00	R	R	R	7.6
8	128	2249	798	16.80	.24	8.32	4.85	7.6
9	736	687	710	12.21	1.86	3.46	5.87	14.8
10	584	489	472	7.38	2.43	4.06	6.43	14.8
11	536	516	204	.90	17.95	34.45	22.37	14.8
12	552	579	134	0.00	R	R	R	14.8
13	308	341	88	0.00	R	R	R	14.8

CYCLE COMPOSITE BSHC = 1.947 GRAM/BHP HR
BSCO+ = 6.284 GRAM/BHP HR
BSNO2++= 6.061 GRAM/BHP HR
BSHC + BSNO2++= 8.007 GRAM/BHP HR

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.32	1.27	.41	
2			1.41	4.01	.99	
3			1.77	3.99	2.60	
4			2.38	2.50	6.86	
5			2.48	1.50	11.52	
6			1.78	14.57	12.31	
7			.45	1.05	.63	
8			.83	29.10	16.96	
9			4.24	8.81	14.94	
10			3.24	6.24	9.89	
11			3.38	6.44	9.21	
12			3.58	7.48	2.83	
13			.44	.97	.91	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.10	R
2	.68	R
3	1.14	.592
4	2.30	.386
5	3.40	.363
6	4.58	.373
7	.10	R
8	6.96	.414
9	4.94	.405
10	3.44	.466
11	1.76	1.947
12	1.68	R
13	.10	R

CYCLE COMPOSITE HC = 2.17 G/MIN.
CO = 7.00 G/MIN.
NO2 = 6.75 G/MIN.
CYCLE COMPOSITE HC = 9.17 G/LB. OF FUEL
CO = 13.46 G/LB. OF FUEL
NO2 = 12.99 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 31.17 LB/HR
WEIGHTED HORSEPOWER = 66.79
WEIGHTED BSFC = .467

* CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-12. 13-MODE FEDERAL DIESEL EMISSION CYCLE

TRUCK NO. D-5, 1974 IH/CAT 1160, 636 CID V8, 54000 LB. GC= TRACTOR
2-22-74 TEST 3

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.02	7.55	7.58	.003
2	1700	0.0	0.0	.14	19.94	20.08	.007
3	1700	76.6	24.8	.24	19.96	20.19	.012
4	1700	229.5	74.3	.47	19.74	20.22	.024
5	1700	361.5	117.0	.71	18.68	19.39	.038
6	1700	473.4	153.4	.95	18.38	19.33	.052
7	600	0.0	0.0	.02	7.43	7.45	.003
8	2800	391.8	208.9	1.45	28.48	29.92	.051
9	2800	287.0	153.0	1.03	29.46	30.49	.035
10	2800	175.2	93.4	.72	28.35	29.07	.025
11	2800	21.2	11.3	.37	27.47	27.84	.013
12	2800	0.0	0.0	.35	27.91	28.26	.012
13	600	0.0	0.0	.02	6.44	6.47	.004

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	H2O, GR/LB
1	224	380	74	0.00	R	R	R	16.5
2	328	474	71	0.00	R	R	R	16.5
3	432	469	186	1.98	9.69	10.04	6.52	16.5
4	560	296	505	5.44	2.01	2.12	5.94	16.5
5	592	180	825	9.36	1.29	.78	5.90	16.5
6	608	1655	888	12.27	.68	5.49	4.84	16.5
7	260	319	126	0.00	R	R	R	16.5
8	104	2138	819	16.71	.20	8.06	5.07	16.5
9	692	705	699	12.24	1.82	3.70	5.47	12.9
10	580	489	967	7.47	2.38	4.00	6.28	12.9
11	536	532	200	.90	17.43	34.44	21.27	12.9
12	544	580	133	0.00	R	R	R	12.9
13	296	341	93	0.00	R	R	R	12.9

CYCLE COMPOSITE BSHC = 1.926 GRAM/BHP HR
BSCO+ = 6.274 GRAM/BHP HR
BSNO2++= 6.193 GRAM/BHP HR
BSHC + BSNO2++= 8.069 GRAM/BHP HR

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.37	1.26	.93	
2			1.95	9.17	1.03	
3			1.92	9.15	2.70	
4			2.99	2.62	7.36	
5			2.53	1.53	11.51	
6			1.79	19.03	12.37	
7			.93	1.04	.67	
8			.68	28.05	17.64	
9			9.49	9.92	15.23	
10			3.71	6.23	9.77	
11			3.28	6.99	9.01	
12			3.38	7.19	8.70	
13			.92	.97	.93	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/MP-HR
1	.10	R
2	.68	R
3	1.16	.585
4	2.28	.389
5	3.41	.364
6	4.58	.373
7	.10	R
8	6.94	.416
9	4.96	.405
10	3.46	.463
11	1.76	1.997
12	1.66	R
13	.10	R

CYCLE COMPOSITE HC = 2.15 G/MIN.
CO = 6.93 G/MIN.
NO2 = 6.85 G/MIN.
CYCLE COMPOSITE HC = 9.13 G/LB. OF FUEL
CO = 13.33 G/LB. OF FUEL
NO2 = 13.17 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 31.19 LB/HR
WEIGHTED HORSEPOWER = 66.89
WEIGHTED BSFC = .466

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-13. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1973 MACK/MACK ENDT 676B, 672 CID I6 TRACTOR, GCW 72000 LB., TRUCK D-N
3-12-74 RUN 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.09	7.30	7.39	.006
2	1260	0.0	0.0	.13	16.20	16.33	.008
3	1260	281.9	67.5	.44	17.90	18.34	.025
4	1260	573.1	137.5	.77	22.00	22.77	.035
5	1260	823.2	197.5	1.11	26.50	27.61	.042
6	1260	1115.0	267.5	1.54	32.70	34.24	.047
7	600	0.0	0.0	.09	7.30	7.39	.006
8	2100	744.0	297.5	1.94	54.70	56.64	.035
9	2100	579.0	231.5	1.55	48.50	50.05	.032
10	2100	368.9	147.5	1.05	90.60	91.65	.026
11	2100	178.8	71.5	.65	33.40	34.05	.019
12	2100	0.0	0.0	.90	28.40	29.30	.019
13	600	0.0	0.0	.09	7.30	7.39	.006

MODE	HC PPM	CO* PPM	NO** PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO* G/HP HR	BSNO2** G/HP HR	H/C. GM/LB
1	176	223	336	0.00	R	R	R	98.8
2	232	265	294	0.00	R	R	R	98.8
3	232	102	988	5.40	.83	.73	11.60	98.8
4	220	154	1536	11.00	.98	.67	10.98	98.8
5	160	686	1686	15.80	.39	2.52	10.18	101.2
6	96	814	1756	21.40	.24	2.74	9.71	101.2
7	132	151	532	0.00	R	R	R	101.2
8	92	150	994	23.80	.23	.25	7.76	101.2
9	140	89	945	18.52	.40	.50	7.89	101.2
10	192	91	621	11.80	.72	.67	7.58	99.5
11	216	127	351	5.72	1.36	1.59	7.23	99.5
12	252	157	205	0.00	R	R	R	99.5
13	160	201	902	0.00	R	R	R	99.5

CYCL COMPOSITE BSHC = .595 GRAM/BHP HR
BSCO* = 1.589 GRAM/BHP HR
BSNO2** = 9.505 GRAM/BHP HR
BSHC + BSNO2** = 10.051 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2* PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.28	.72	1.78	
2			.83	1.90	3.96	
3			.94	.82	13.05	
4			1.10	1.53	25.17	
5			.97	8.30	33.52	
6			.72	12.22	93.30	
7			.21	.98	2.81	
8			1.15	3.72	38.99	
9			1.54	1.95	30.95	
10			1.76	1.46	18.62	
11			1.62	1.89	8.41	
12			1.62	2.01	9.33	
13			.26	.65	2.13	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.17	R
2	.63	R
3	2.12	.393
4	3.68	.335
5	5.34	.338
6	7.41	.346
7	.17	R
8	9.32	.392
9	7.44	.402
10	5.04	.427
11	3.10	.543
12	1.92	R
13	.17	R

CYCLE COMPOSITE HC = 1.03 G/MIN.
CO = 3.00 G/MIN.
NO2 = 17.97 G/MIN.
CYCLE COMPOSITE HC = 1.33 G/LB. OF FUEL
CO = 3.88 G/LB. OF FUEL
NO2 = 23.18 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 94.51 LB/HR
WEIGHTED HORSEPOWER = 113.44
WEIGHTED BSFC = .410

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE F-14. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1973 MACK/MACK ENGT 673H, 672 CID I6 TRACTOR, GCW 72000 LB., TRUCK D=6
T=12=7+ M-N 3

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.08	7.30	7.33	.006
2	1260	0.0	0.0	.11	16.20	16.31	.007
3	1260	302.2	72.5	.46	18.10	18.56	.025
4	1260	562.7	135.0	.76	21.80	22.56	.036
5	1260	839.9	201.5	1.13	26.90	28.03	.042
6	1260	1098.3	263.5	1.52	32.90	33.42	.047
7	600	0.0	0.0	.03	7.30	7.33	.004
8	2100	739.0	295.5	1.41	54.30	56.21	.025
9	2100	575.2	230.7	1.52	98.40	99.92	.031
10	2100	368.9	147.5	1.05	90.60	91.65	.026
11	2100	170.1	68.0	.63	33.30	33.93	.019
12	2100	0.0	0.0	.35	27.00	27.35	.013
13	600	0.0	0.0	.04	7.30	7.34	.006

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	200	295	320	0.00	*	*	*	93.9
2	236	270	302	0.00	*	*	*	93.9
3	290	110	1009	5.80	.81	.74	11.11	93.9
4	220	174	1632	10.80	.49	.76	11.78	93.9
5	160	406	1696	16.12	.29	2.22	10.19	96.2
6	92	915	1736	21.08	.16	2.76	9.65	96.2
7	190	197	518	0.00	*	*	*	96.2
8	96	157	968	21.98	.29	.74	7.85	96.2
9	132	105	850	18.90	.38	.61	7.97	96.2
10	184	86	589	11.80	.69	.64	7.18	96.3
11	208	131	391	5.99	1.37	1.72	7.35	96.3
12	252	157	209	0.00	*	*	*	96.3
13	160	201	916	0.00	*	*	*	96.3

CYCLE COMPOSITE BSHC = .538 GRAM/BHP HR
BSCO+ = 1.585 GRAM/BHP HR
BSNO2++= 9.596 GRAM/BHP HR
BSHC + BSNO2++= 10.085 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.32	.24	1.64	
2			.85	1.43	3.64	
3			.98	.89	13.92	
4			1.09	1.72	26.50	
5			.99	2.45	39.23	
6			.69	12.12	52.40	
7			.23	.47	2.74	
8			1.19	3.88	38.38	
9			1.45	2.29	30.56	
10			1.69	1.57	17.66	
11			1.55	1.45	8.33	
12			1.58	1.88	9.02	
13			.24	.65	2.20	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.13	*
2	.55	*
3	2.20	.379
4	3.64	.337
5	5.42	.336
6	7.30	.396
7	.12	*
8	9.16	.340
9	7.28	.394
10	5.04	.427
11	3.02	.556
12	1.70	*
13	.17	*

CYCLE COMPOSITE HC = 1.01 G/MIN.
CO = 2.98 G/MIN.
NO2 = 17.47 G/MIN.
CYCLE COMPOSITE HC = 1.33 G/LB. OF FUEL
CO = 3.91 G/LB. OF FUEL
NO2 = 23.53 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 45.74 LB/HR
WEIGHTED HORSEPOWER = 112.92
WEIGHTED BSFC = .405

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE D-IV. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1973 MACK/DETROIT DIESEL 8V-71, 568 CID +R TRACTOR, GC= 72000 LB., TRUCK U=?
3-13-74 RUN 1

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.05	13.86	13.91	.003
2	1260	0.0	0.0	.16	39.21	39.38	.004
3	1260	209.2	49.8	.37	39.96	39.33	.010
4	1260	387.6	93.0	.61	38.21	38.82	.016
5	1260	571.1	137.0	.86	38.36	39.22	.021
6	1260	783.6	188.0	1.32	37.85	39.17	.035
7	600	0.0	0.0	.04	13.38	13.42	.003
8	2100	720.3	288.0	1.86	62.13	64.00	.030
9	2100	530.2	212.0	1.37	64.96	66.33	.021
10	2100	370.1	148.0	1.08	62.19	63.17	.017
11	2100	132.6	53.0	.67	62.55	63.22	.011
12	2100	0.0	0.0	.03	63.83	63.86	.000
13	600	0.0	0.0	.04	13.50	13.54	.003

MODE	HC PPM	CO* PPM	NO** PPM	WEIGHTED BSHC G/HP HR	BSCO* G/HP HR	BSNO2** G/HP HR	MOM. GR/LB
1	112	70	118	0.00	R	R	R	72.0
2	124	152	67	0.00	R	R	R	72.0
3	112	69	851	3.92	1.19	1.97	8.20	72.0
4	112	38	526	3.99	.62	.92	9.99	72.0
5	132	84	939	10.96	.90	.63	11.62	62.6
6	136	5543	998	15.09	.37	30.37	8.98	62.6
7	112	59	158	0.00	R	R	R	62.6
8	148	1255	1048	23.09	.93	3.33	10.06	62.6
9	112	68	762	16.96	.96	.56	10.30	62.6
10	112	38	936	11.84	.63	.93	8.09	56.4
11	112	96	195	4.24	1.76	1.45	10.33	56.4
12	120	39	121	0.00	R	R	R	56.4
13	108	63	127	0.00	R	R	R	56.4

CYCLE COMPOSITE BSHC = .754 GRAM/BHP HR
BSCO* = 7.385 GRAM/BHP HR
BSNO2** = 10.260 GRAM/BHP HR
BSHC + BSNO2** = 11.014 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2* PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.39	.93	1.18	
2			1.07	2.63	1.89	
3			.97	1.20	7.10	
4			.96	.65	14.71	
5			1.19	1.99	26.53	
6			1.17	95.15	28.19	
7			.33	.35	1.52	
8			2.08	35.20	48.30	
9			1.63	1.98	34.38	
10			1.56	1.06	19.82	
11			1.56	1.28	8.86	
12			1.70	2.22	4.69	
13			.32	.37	1.21	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.19	R
2	.78	R
3	1.80	.459
4	2.92	.392
5	9.22	.385
6	4.32	.420
7	.17	R
8	8.96	.388
9	6.58	.388
10	4.96	.418
11	3.22	.358
12	2.06	R
13	.17	R

CYCLE COMPOSITE HC = 1.17 G/MIN.
CO = 11.60 G/MIN.
NO2 = 15.98 G/MIN.
CYCLE COMPOSITE HC = 1.66 G/LB. OF FUEL
CO = 16.31 G/LB. OF FUEL
NO2 = 22.66 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 42.31 LB/HR
WEIGHTED HORSEPOWER = 93.94
WEIGHTED BSFC = .453

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

13-MODE FEDERAL DIESEL EMISSION CYCLE

1978 MACK/DETROIT DIESEL 8-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK 0-7
3-13-79 RUN 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.09	13.76	13.80	.003
2	1260	0.0	0.0	.16	38.40	38.57	.004
3	1260	208.9	50.0	.38	39.05	39.43	.010
4	1260	387.6	93.0	.61	38.54	39.15	.016
5	1260	587.7	141.0	.89	38.39	39.28	.023
6	1260	783.6	188.0	1.32	38.89	40.21	.034
7	600	0.0	0.0	.04	13.57	13.61	.003
8	2100	715.3	286.0	1.86	62.76	64.62	.030
9	2100	530.2	212.0	1.37	61.88	63.24	.022
10	2100	370.1	148.0	1.02	61.98	62.50	.017
11	2100	130.0	52.0	.67	62.93	63.60	.011
12	2100	0.0	0.0	.43	62.16	62.59	.007
13	600	0.0	0.0	.09	13.15	13.19	.003

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	112	71	107	0.00	R	R	R	57.7
2	126	199	61	0.00	R	R	R	57.7
3	110	70	253	9.00	1.19	1.99	8.62	57.7
4	112	38	510	7.99	.62	.92	9.28	57.7
5	136	84	984	11.28	.50	.61	11.85	62.9
6	136	5553	1028	15.09	.38	31.29	9.50	62.9
7	118	59	150	0.00	R	R	R	62.9
8	148	1297	1187	22.88	.99	7.71	11.59	62.9
9	112	64	872	16.96	.99	.50	11.29	62.9
10	112	38	581	11.89	.62	.92	9.19	60.9
11	112	92	218	9.16	1.81	1.37	11.51	60.9
12	120	70	120	0.00	R	R	R	60.9
13	112	57	142	0.00	R	R	R	60.9

CYCLE COMPOSITE BSHC = .751 GRAM/BHP HR
BSCO+ = 7.553 GRAM/BHP HR
BSNO2++= 11.128 GRAM/BHP HR
HSHC + BSNO2++= 11.879 GRAM/BHP HR

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.39	.93	1.04	
2			1.07	2.51	1.69	
3			.95	1.20	7.19	
4			.96	.66	14.38	
5			1.18	1.99	27.84	
6			1.20	97.88	29.76	
7			.35	.35	1.97	
8			2.19	36.73	55.23	
9			1.56	1.78	39.72	
10			1.59	1.09	22.56	
11			1.53	1.19	9.98	
12			1.65	1.92	8.91	
13			.32	.33	1.75	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.17	R
2	.78	R
3	1.82	.956
4	2.92	.398
5	4.27	.379
6	6.32	.420
7	.17	R
8	8.92	.390
9	6.56	.367
10	4.40	.419
11	3.20	.769
12	2.06	R
13	.17	R

CYCLE COMPOSITE HC = 1.17 G/MIN.
CO = 11.78 G/MIN.
NO2 = 17.36 G/MIN.
CYCLE COMPOSITE HC = 1.66 G/LB. OF FUEL
CO = 16.73 G/LB. OF FUEL
NO2 = 24.65 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 42.24 LB/HR
WEIGHTED HORSEPOWER = 93.60
WEIGHTED BSFC = .452

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-IV. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1978 MACK/MACK ENDT 6738, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK [illegible]
3-14-79 RUN 1

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	500	0.0	0.0	.02	6.68	6.70	.004
2	1600	0.0	0.0	.16	20.73	20.89	.008
3	1600	151.0	46.0	.37	20.66	21.04	.018
4	1600	285.6	87.0	.57	22.52	23.09	.025
5	1600	502.2	153.0	.91	25.98	26.89	.035
6	1600	682.8	208.0	1.22	30.07	31.29	.041
7	500	0.0	0.0	.02	5.53	5.56	.005
8	1900	652.9	236.0	1.49	38.53	40.02	.039
9	1900	497.6	180.0	1.12	32.40	33.52	.035
10	1900	326.2	118.0	.79	28.06	28.85	.028
11	1900	140.3	50.0	.50	24.59	25.08	.020
12	1900	0.0	0.0	.29	22.84	23.09	.011
13	500	0.0	0.0	.02	6.22	6.24	.004

MODE	HC PPM	CO* PPM	NO** PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO* G/HP HR	BSNO2** G/HP HR	MIM. GM/LB
1	444	609	192	0.00	*	*	*	73.1
2	716	594	278	0.00	*	*	*	73.1
3	709	265	905	3.68	9.25	3.19	17.88	73.1
4	760	194	1545	6.96	2.64	1.02	17.95	73.1
5	792	284	2490	12.29	1.89	1.32	18.91	74.9
6	509	830	2809	16.69	1.90	3.28	18.22	74.9
7	514	327	444	0.00	*	*	*	74.9
8	908	784	2926	18.88	.91	3.50	17.77	74.9
9	692	337	2965	14.90	1.70	1.65	19.67	74.9
10	768	151	1877	9.99	2.98	.97	19.82	74.2
11	784	191	1166	4.66	4.48	2.18	21.78	74.2
12	909	390	359	0.00	*	*	*	74.2
13	508	332	347	0.00	*	*	*	74.2

CYCLE COMPOSITE BSHC = 2.360 GRAM/BHP HR
BSCO* = 2.990 GRAM/BHP HR
BSNO2** 19.598 GRAM/BHP HR
BSHC + BSNO2** 21.907 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2* PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.65	1.79	.95	
2			3.29	5.99	4.17	
3			3.26	2.95	13.71	
4			3.86	1.97	26.02	
5			4.69	3.37	48.21	
6			3.97	11.39	68.18	
7			.63	.80	1.78	
8			3.59	13.76	69.90	
9			5.10	4.95	59.02	
10			4.87	1.91	38.99	
11			4.33	2.10	21.05	
12			4.59	3.99	5.88	
13			.70	.91	1.65	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.10	*
2	.76	*
3	1.80	.489
4	2.72	.391
5	4.38	.358
6	5.86	.362
7	.10	*
8	7.14	.378
9	5.40	.375
10	3.80	.403
11	2.38	.519
12	1.16	*
13	.09	*

CYCLE COMPOSITE HC = 3.92 G/MIN.
CO = 9.26 G/MIN.
NO2 = 28.30 G/MIN.
CYCLE COMPOSITE HC = 5.74 G/LB. OF FUEL
CO = 7.16 G/LB. OF FUEL
NO2 = 47.58 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 35.69 LB/HR
WEIGHTED HORSEPOWER = 84.88
WEIGHTED BSFC = .911

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-IX. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1970 MACK/MACK ENGT 673A, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-8
3-14-74 RUN 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	600	0.0	0.0	.02	6.52	6.55	.004
2	1600	0.0	0.0	.46	20.30	20.96	.008
3	1600	169.1	50.0	.39	21.22	21.61	.018
4	1600	290.5	88.5	.57	22.14	22.71	.026
5	1600	512.1	156.0	.93	26.52	27.45	.035
6	1600	672.9	205.0	1.22	29.85	31.07	.041
7	600	0.0	0.0	.02	6.91	6.99	.004
8	1900	652.9	236.0	1.49	37.73	39.23	.040
9	1900	489.9	177.0	1.11	33.10	34.20	.033
10	1900	327.6	118.5	.79	27.16	27.96	.029
11	1900	157.6	57.0	.49	25.11	25.60	.020
12	1900	0.0	0.0	.25	22.53	22.78	.011
13	600	0.0	0.0	.02	6.15	6.18	.004

MODE	HC PPM	CO* PPM	NO** PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO* G/HP HR	BSNO2** G/HP HR	NUM. GR/LB
1	529	581	172	0.00	W	R	R	82.7
2	780	587	250	0.00	W	R	R	82.7
3	752	265	893	9.00	9.29	3.01	16.75	82.7
4	779	153	1916	27.00	2.42	1.09	15.7	82.7
5	824	329	2399	42.48	1.91	1.52	18.24	79.3
6	512	829	2705	56.40	1.02	3.30	17.71	79.3
7	508	327	966	0.00	W	R	R	79.3
8	528	798	2220	48.88	.99	3.99	15.94	79.3
9	680	312	2383	39.16	1.33	1.58	19.90	79.3
10	776	151	1915	29.98	2.62	.99	19.52	81.0
11	800	191	1181	19.56	9.79	2.26	22.91	81.0
12	936	390	358	0.00	R	R	R	81.0
13	516	331	387	0.00	W	R	R	81.0

CYCLE COMPOSITE BSHC = 2.928 GRAM/BHP HR
BSCO* = 2.937 GRAM/BHP HR
BSNO2** = 18.769 GRAM/BHP HR
BSHC + BSNO2** = 21.197 GRAM/BHP HR

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2* PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.25	1.67	.81	
2			3.51	5.27	3.83	
3			3.58	2.51	13.95	
4			3.87	1.53	23.15	
5			4.98	3.96	57.91	
6			3.50	11.29	60.99	
7			.22	.92	2.16	
8			3.69	13.73	62.70	
9			5.12	9.67	58.69	
10			9.29	1.85	38.59	
11			9.51	2.15	21.76	
12			9.69	3.39	5.87	
13			.20	.90	1.72	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.10	R
2	.76	R
3	1.88	.930
4	2.76	.390
5	4.46	.358
6	5.89	.396
7	.10	R
8	7.16	.379
9	5.32	.376
10	3.80	.401
11	2.35	.516
12	1.18	R
13	.10	R

CYCLE COMPOSITE HC = 3.52 G/MIN.
CO = 9.26 G/MIN.
NO2 = 27.23 G/MIN.
CYCLE COMPOSITE HC = 5.90 G/LB. OF FUEL
CO = 7.19 G/LB. OF FUEL
NO2 = 55.60 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 35.82 LB/HR
WEIGHTED HORSEPOWER = 87.09
WEIGHTED BSFC = .412

* CONVERTED TO WET BASIS
** CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-19. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1973 MACK/CUMMINS NTC 290, 855 CID I6 TRACTOR, GCW 72000 LB, TRUCK D-9
3-15-74 RUN 1

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	610	0.0	0.0	.05	9.07	9.12	.006
2	1500	0.0	0.0	.27	21.43	21.70	.013
3	1500	235.6	67.3	.53	23.05	23.58	.023
4	1500	439.2	124.0	.89	26.47	27.31	.032
5	1500	668.8	191.0	1.20	28.72	29.93	.042
6	1500	895.6	255.8	1.68	32.81	34.49	.051
7	610	0.0	0.0	.05	7.69	7.75	.007
8	2100	730.3	292.0	2.09	49.38	51.48	.041
9	2100	540.2	216.0	1.44	41.83	43.27	.034
10	2100	372.6	149.0	1.10	36.58	37.69	.030
11	2100	175.1	70.0	.71	33.23	33.94	.021
12	2100	0.0	0.0	.37	29.77	30.14	.012
13	610	0.0	0.0	.05	8.67	8.73	.006

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	192	177	97	0.00	R	R	R	84.7
2	172	247	147	0.00	R	R	R	84.7
3	104	154	469	5.38	.48	1.42	7.09	84.7
4	100	184	1037	9.42	.29	1.06	9.87	84.7
5	96	367	1828	15.28	.20	1.51	12.37	86.1
6	88	1312	2615	20.96	.16	4.45	15.23	86.1
7	128	122	157	0.00	R	R	R	86.1
8	152	306	1772	23.36	.35	1.42	13.48	86.1
9	112	190	1257	17.28	.30	1.00	10.88	86.1
10	96	152	837	11.42	.32	1.01	9.15	81.3
11	96	171	515	5.60	.61	2.18	10.79	81.3
12	112	247	295	0.00	R	R	R	81.3
13	152	160	122	0.00	R	R	R	81.3

CYCLE COMPOSITE BSHC = .398 GRAM/BHP HR
BSCO+ = 2.299 GRAM/BHP HR
BSNO2++= 12.459 GRAM/BHP HR
BSHC + BSNO2++= 12.851 GRAM/BHP HR

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.39	.71	.69	
2			.82	2.35	2.30	
3			.59	1.60	7.96	
4			.60	2.20	20.39	
5			.63	4.81	39.39	
6			.67	19.83	69.99	
7			.22	.41	.88	
8			1.72	6.90	65.60	
9			1.07	3.60	39.19	
10			.80	2.51	22.71	
11			.72	2.59	12.59	
12			.74	3.26	6.39	
13			.29	.61	.77	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.20	R
2	1.30	R
3	2.56	.475
4	4.03	.406
5	5.78	.378
6	8.06	.384
7	.22	R
8	4.78	.414
9	6.90	.384
10	5.30	.444
11	3.41	.604
12	1.76	R
13	.21	R

CYCLE COMPOSITE HC = .72 G/MIN.
CO = 4.08 G/MIN.
NO2 = 22.67 G/MIN.
CYCLE COMPOSITE HC = .88 G/LB. OF FUEL
CO = 4.95 G/LB. OF FUEL
NO2 = 27.47 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 49.51 LB/HR
WEIGHTED HORSEPOWER = 109.21
WEIGHTED BSFC = .453

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-20. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1973 MACK/CUMMINS NTC 290, 855 CID I6 TRACTOR, GVW 77000 LB, TRUCK 044
3-15-74 RUN#6

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	610	0.0	0.0	.06	9.04	9.10	.006
2	1500	0.0	0.0	.26	20.66	20.93	.013
3	1500	238.1	68.0	.54	23.11	23.45	.023
4	1500	439.4	125.5	.85	26.47	27.31	.032
5	1500	672.3	192.0	1.21	28.97	30.18	.042
6	1500	896.3	256.0	1.69	32.36	34.05	.052
7	610	0.0	0.0	.05	8.32	8.37	.006
8	2100	731.0	292.3	2.04	50.68	52.72	.040
9	2100	541.0	216.3	1.44	41.27	42.71	.035
10	2100	379.6	151.8	1.12	36.76	37.88	.030
11	2100	177.6	71.0	.71	32.98	33.70	.022
12	2100	0.0	0.0	.36	28.81	29.17	.013
13	610	0.0	0.0	.06	8.53	8.59	.007

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	166	160	96	0.00	R	R	R	20.7
2	156	255	172	0.00	R	R	R	80.7
3	104	167	529	5.44	.48	1.62	7.95	80.7
4	100	149	1095	10.04	.29	1.19	10.29	80.7
5	88	924	2003	15.36	.18	1.75	13.60	97.7
6	72	1928	2769	20.48	.13	5.00	15.85	97.7
7	116	139	177	0.00	R	R	R	97.7
8	132	331	1926	23.38	.31	1.57	15.00	97.7
9	104	186	1307	17.30	.27	.96	11.15	97.7
10	91	155	972	12.14	.30	1.02	10.47	108.6
11	88	170	550	5.68	.55	2.12	11.28	108.6
12	112	236	315	0.00	R	R	R	108.6
13	152	159	130	0.00	R	R	R	108.6

CYCLE COMPOSITE BSHC = .369 GRAM/BHP HR
BSCO+ = 2.366 GRAM/BHP HR
BSNO2++= 13.378 GRAM/BHP HR
BSHC + BSNO2++= 13.742 GRAM/BHP HR

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.33	.72	.63	
2			.72	2.34	2.59	
3			.59	1.73	9.01	
4			.60	2.39	21.53	
5			.58	5.62	33.51	
6			.59	21.32	67.64	
7			.21	.49	1.09	
8			1.53	7.65	73.09	
9			.48	3.48	40.20	
10			.76	2.57	26.50	
11			.65	2.51	13.35	
12			.72	3.01	6.61	
13			.29	.60	.81	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.23	R
2	1.26	R
3	2.58	.475
4	4.06	.405
5	5.80	.328
6	8.10	.395
7	.21	R
8	9.79	.419
9	6.91	.399
10	5.34	.441
11	3.42	.603
12	1.74	R
13	.23	R

CYCLE COMPOSITE HC = .67 G/MIN.
CO = 9.33 G/MIN.
NO2 = 89.99 G/MIN.
CYCLE COMPOSITE HC = .80 G/LB. OF FUEL
CO = 5.23 G/LB. OF FUEL
NO2 = 29.55 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 99.72 LB/HR
WEIGHTED HORSEPOWER = 109.83
WEIGHTED BSFC = .453

+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-21. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1970 FORD/OD 4L-53, 212 CID I4 BOX VAN, GVW 17000, TRUCK D-10
3-28-74 RUN 1

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	920	0.0	0.0	.01	9.61	9.62	.003
2	1800	0.0	0.0	.15	20.83	20.98	.007
3	1800	51.1	17.5	.23	20.83	21.06	.011
4	1800	138.3	47.4	.35	20.76	21.11	.017
5	1800	217.4	74.5	.50	20.71	21.21	.024
6	1800	282.7	96.9	.77	20.58	21.35	.037
7	920	0.0	0.0	.01	9.52	9.53	.003
8	2800	269.5	191.0	1.03	31.96	33.00	.032
9	2800	189.4	101.0	.78	31.96	32.75	.025
10	2800	123.8	66.0	.58	31.86	32.45	.018
11	2800	56.3	30.0	.40	31.86	32.27	.013
12	2800	0.0	0.0	.29	32.73	33.02	.009
13	920	0.0	0.0	.01	9.51	9.52	.003

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	MUM, GR/LB
1	200	107	133	0.00	R	R	R	96.1
2	316	66	58	0.00	R	R	R	96.1
3	380	58	261	1.40	4.09	1.85	13.07	96.1
4	476	69	505	3.79	2.80	.81	9.71	96.1
5	592	265	836	5.96	2.22	1.99	10.28	99.3
6	616	5973	933	7.75	1.79	31.71	8.88	99.3
7	560	128	162	0.00	R	R	R	99.3
8	680	1557	1011	11.28	2.10	9.58	10.22	99.3
9	516	198	829	8.08	2.21	1.69	11.61	99.3
10	432	81	567	5.28	2.80	1.05	12.05	99.3
11	392	66	298	2.40	5.57	1.86	13.83	99.3
12	408	90	130	0.00	R	R	R	99.3
13	492	116	147	0.00	R	R	R	99.3

CYCLE COMPOSITE BSHC = 3.099 GRAM/BHP HR
BSCO+ = 8.860 GRAM/BHP HR
BSNO2++= 11.233 GRAM/BHP HR
BSHC + BSNO2++= 14.327 GRAM/BHP HR

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.20	.22	.99	
2			1.96	.61	.88	
3			1.76	.59	3.81	
4			2.21	.69	7.67	
5			2.76	2.97	12.76	
6			2.89	51.21	14.39	
7			.56	.25	.63	
8			9.99	22.52	24.02	
9			3.72	2.85	14.55	
10			3.08	1.15	13.26	
11			2.78	.93	6.91	
12			2.96	1.31	3.10	
13			.99	.23	.98	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.05	R
2	.79	R
3	1.10	.789
4	1.68	.993
5	2.90	.903
6	3.70	.977
7	.05	R
8	9.96	.990
9	3.74	.965
10	2.80	.530
11	1.99	.807
12	1.38	R
13	.05	R

CYCLE COMPOSITE HC = 2.37 G/MIN.
CO = 6.78 G/MIN.
NO2 = 8.60 G/MIN.
CYCLE COMPOSITE HC = 5.78 G/LB. OF FUEL
CO = 16.55 G/LB. OF FUEL
NO2 = 20.98 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 24.60 LB/HR
WEIGHTED HORSEPOWER = 95.99
WEIGHTED BSFC = .536

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

TABLE B-22. 13-MODE FEDERAL DIESEL EMISSION CYCLE

1970 FORD/DD VL-53, 212 CID I6 BOX VAN, GVW 17000 LB., TRUCK D-10
3-28-74 RUN 2

MODE	ENGINE SPEED RPM	TORQUE LB-FT	POWER BHP	FUEL FLOW LB/MIN	AIR FLOW LB/MIN	EXHAUST FLOW LB/MIN	FUEL AIR RATIO
1	920	0.0	0.0	.01	9.51	9.52	.003
2	1800	0.0	0.0	.15	21.39	21.54	.007
3	1800	50.5	17.3	.23	20.50	20.73	.011
4	1800	138.3	47.4	.35	20.44	20.79	.017
5	1800	218.2	74.8	.50	20.40	20.90	.025
6	1800	282.1	96.7	.77	20.40	21.16	.038
7	920	0.0	0.0	.00	9.98	9.99	.000
8	2800	269.5	191.0	1.03	31.79	32.82	.033
9	2800	187.6	100.0	.77	31.68	32.46	.024
10	2800	124.7	66.5	.59	32.34	32.93	.018
11	2800	55.3	29.5	.40	32.34	32.74	.012
12	2800	0.0	0.0	.27	32.34	32.62	.009
13	920	0.0	0.0	.01	9.96	9.97	.003

MODE	HC PPM	CO+ PPM	NO++ PPM	WEIGHTED BHP	BSHC G/HP HR	BSCO+ G/HP HR	BSNO2++ G/HP HR	HUM. GR/LB
1	268	107	121	0.00	R	R	R	80.2
2	352	70	91	0.00	R	R	R	80.2
3	400	61	228	1.38	6.33	1.94	11.78	80.2
4	468	68	486	3.79	2.71	.79	9.21	80.2
5	589	296	861	5.98	2.15	2.17	10.39	84.4
6	656	5983	892	7.74	1.90	31.56	8.44	84.4
7	590	153	159	0.00	R	R	R	84.4
8	672	1816	1033	11.28	2.06	11.12	10.39	84.4
9	516	228	853	8.00	2.21	1.94	11.96	84.4
10	416	92	619	5.32	2.72	1.19	13.19	88.4
11	372	69	300	2.36	5.95	2.01	14.32	88.4
12	429	110	139	0.00	R	R	R	88.4
13	509	128	195	0.00	R	R	R	88.4

CYCLE COMPOSITE BSHC = 3.112 GRAM/BHP HR
BSCO+ = 9.348 GRAM/BHP HR
BSNO2++= 11.319 GRAM/BHP HR
BSHC + BSNO2++= 14.431 GRAM/BHP HR

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

MODE	CO2+ PCT	CARBON BAL. ERROR PCT	MASS EMISSIONS HC G/MIN	CO G/MIN	NO2 G/MIN	CO2 KG/MIN
1			.27	.21	.39	
2			1.67	.66	.69	
3			1.82	.56	3.90	
4			2.19	.62	7.27	
5			2.69	2.71	12.96	
6			3.05	50.87	13.60	
7			.53	.30	.51	
8			9.85	26.13	29.92	
9			3.68	3.29	19.93	
10			3.01	1.32	14.57	
11			2.68	.99	7.06	
12			3.09	1.57	3.19	
13			.50	.25	.47	

MODE	WEIGHTED FUEL FLOW LB/HR	BSFC LB/HP-HR
1	.05	R
2	.71	R
3	1.09	.786
4	1.68	.993
5	2.92	.909
6	3.68	.976
7	.01	R
8	9.96	.990
9	3.72	.965
10	2.83	.532
11	1.90	.807
12	1.32	R
13	.05	R

CYCLE COMPOSITE HC = 2.38 G/MIN.
CO = 7.19 G/MIN.
NO2 = 8.65 G/MIN.
CYCLE COMPOSITE HC = 5.84 G/LB. OF FUEL
CO = 17.55 G/LB. OF FUEL
NO2 = 21.26 G/LB. OF FUEL
WEIGHTED FUEL FLOW = 29.92 LB/HR
WEIGHTED HORSEPOWER = 95.86
WEIGHTED BSFC = .533

\+ CONVERTED TO WET BASIS
++ CONVERTED TO WET BASIS AND CORRECTED TO 75 GRAINS WATER PER LB. DRY AIR

APPENDIX C

TRUCK OPERATIONAL DATA FOR TEN TRUCK DIESEL FLEET BY RUN FOR EACH TRUCK

OPERATIONAL DATA
S.A.R.R. TRUCK D-1

1972 FORD 24,000-LB GVW VAN
WITH CATERPILLAR MODEL 1150 ENGINE

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TABLE C-1.

1972 FORD/CAT 1150. 573 CID V8. 24000 LM. GVW VAN. TRUCK D-1

RUN DURATION 22.08 MIN. IDLE SPEED 750 RPM 12/11/73. RUN 1

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1621.8708	605.0206	5.7068	11240	3595.0000	450.0000	3145.0000
FF	2	19.1088	18.1610	.3428	2810	77.2751	.4125	76.8626
SPD	3	19.8114	13.9425	.1315	11240	54.2850	.0000	54.2850

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	3	.11
2	811	28.86
3	354	12.60
4	1342	47.76
5	296	10.53
6	0	.00
7	4	.14

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	564	20.07
4. - 8.	572	20.36
8. - 12.	214	7.62
12. - 16.	247	8.79
16. - 20.	206	7.33
20. - 24.	146	5.20
24. - 28.	153	5.44
28. - 32.	106	3.77
32. - 36.	104	3.70
36. - 40.	77	2.74
40. - 44.	98	3.49
44. - 48.	55	1.96
48. - 52.	45	1.60
52. - 56.	46	1.64
56. - 60.	32	1.14
60. - 64.	43	1.53
64. - 68.	50	1.78
68. - 72.	38	1.35
72. - 76.	10	.36
76. - 80.	4	.14
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	1946	17.31
2. - 4.	251	2.23
4. - 6.	281	2.50
6. - 8.	259	2.30
8. - 10.	264	2.35
10. - 12.	319	2.84
12. - 14.	441	3.92
14. - 16.	596	5.30
16. - 18.	502	4.47
18. - 20.	391	3.48
20. - 22.	570	5.07
22. - 24.	908	8.08
24. - 26.	1019	9.07
26. - 28.	1209	10.76
28. - 30.	379	3.37
30. - 32.	308	3.27
32. - 34.	231	2.06
34. - 36.	142	1.26
36. - 38.	43	.38
38. - 40.	47	.42
40. - 42.	30	.27
42. - 44.	77	.69
44. - 46.	84	.75
46. - 48.	246	2.19
48. - 50.	251	2.23
50. - 52.	286	2.54
52. - 54.	97	.86
54. - 56.	3	.03
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	517	4.60
600. - 800.	740	6.58
800. - 1000.	881	7.84
1000. - 1200.	1285	11.43
1200. - 1400.	675	6.01
1400. - 1600.	913	8.12
1600. - 1800.	1350	12.01
1800. - 2000.	1836	16.33
2000. - 2200.	814	7.24
2200. - 2400.	989	8.80
2400. - 2600.	788	7.01
2600. - 2800.	318	2.83
2800. - 3000.	96	.85
3000. - 3200.	28	.25
3200. - 3400.	7	.06
3400. - 3600.	3	.03
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-2.
1972 FORD/CAT 1150, 573 CID V8, 24000 LB. GVW VAN, TRUCK D-1
RUN DURATION 22.49 MIN. IDLE SPEED 550 RPM 12/11/73, RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1600.2861	562.6649	5.2423	11520	3320.0000	325.0000	2995.0000
FF	2	17.9117	15.6769	.2958	2880	75.3198	.1679	75.1519
SPD	3	19.3420	13.3040	.1240	11520	53.0865	.0000	53.0865

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	777	26.98
3	551	19.13
4	1243	43.16
5	306	10.62
6	0	.00
7	3	.10

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	532	18.47
4. - 8.	555	19.27
8. - 12.	250	8.68
12. - 16.	268	9.31
16. - 20.	233	8.09
20. - 24.	216	7.50
24. - 28.	117	4.06
28. - 32.	149	5.17
32. - 36.	151	5.24
36. - 40.	97	3.37
40. - 44.	76	2.64
44. - 48.	60	2.08
48. - 52.	56	1.94
52. - 56.	20	.69
56. - 60.	31	1.08
60. - 64.	44	1.53
64. - 68.	8	.28
68. - 72.	12	.42
72. - 76.	5	.17
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	1706	14.81
2. - 4.	287	2.49
4. - 6.	376	3.26
6. - 8.	337	2.93
8. - 10.	335	2.91
10. - 12.	427	3.71
12. - 14.	572	4.97
14. - 16.	569	4.94
16. - 18.	501	4.35
18. - 20.	675	5.86
20. - 22.	646	5.61
22. - 24.	914	7.93
24. - 26.	1095	9.51
26. - 28.	965	8.38
28. - 30.	441	3.83
30. - 32.	109	.95
32. - 34.	217	1.88
34. - 36.	85	.74
36. - 38.	38	.33
38. - 40.	56	.49
40. - 42.	42	.36
42. - 44.	205	1.78
44. - 46.	271	2.35
46. - 48.	335	2.91
48. - 50.	233	2.02
50. - 52.	66	.59
52. - 54.	15	.13
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	4	.03
400. - 600.	502	4.36
600. - 800.	696	6.04
800. - 1000.	805	6.99
1000. - 1200.	1283	11.14
1200. - 1400.	816	7.08
1400. - 1600.	1091	9.47
1600. - 1800.	1650	14.32
1800. - 2000.	1721	14.94
2000. - 2200.	1045	9.07
2200. - 2400.	1210	10.50
2400. - 2600.	449	3.90
2600. - 2800.	162	1.41
2800. - 3000.	62	.54
3000. - 3200.	19	.16
3200. - 3400.	5	.04
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-3.

1972 FORD/CAT 1150. 573 CID V8. 24000 LBS. GVW VAN. TRUCK U-1
RUN DURATION 24.03 MIN. IDLE SPEED 550 RPM 12/11/73. RUN 6

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1483.6006	501.9191	4.5220	12320	2835.0000	.0000	2835.0000
FF	2	14.9378	14.2429	.2566	3080	71.2872	.1773	71.1099
SPD	3	18.0552	12.9445	.1166	12320	49.9845	.0000	49.9845

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	901	29.25
3	321	10.42
4	1520	49.35
5	336	10.91
6	0	.00
7	2	.06

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	689	22.37
4. - 8.	693	22.50
8. - 12.	324	10.52
12. - 16.	293	9.51
16. - 20.	223	7.24
20. - 24.	213	6.92
24. - 28.	134	4.35
28. - 32.	134	4.35
32. - 36.	60	1.95
36. - 40.	60	1.95
40. - 44.	78	2.53
44. - 48.	44	1.44
48. - 52.	43	1.40
52. - 56.	36	1.17
56. - 60.	21	.68
60. - 64.	11	.36
64. - 68.	17	.55
68. - 72.	5	.16
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.		.00
92. - 96.		.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
0. - 2.	2476	20.10
2. - 4.	204	1.66
4. - 6.	201	1.63
6. - 8.	256	2.10
8. - 10.	313	2.54
10. - 12.	442	3.59
12. - 14.	592	4.81
14. - 16.	456	3.69
16. - 18.	688	5.62
18. - 20.	735	5.97
20. - 22.	702	5.70
22. - 24.	1240	10.06
24. - 26.	1632	13.25
26. - 28.	534	4.33
28. - 30.	368	2.99
30. - 32.	97	.79
32. - 34.	35	.28
34. - 36.	31	.25
36. - 38.	56	.45
38. - 40.	144	1.17
40. - 42.	196	1.57
42. - 44.	244	2.43
44. - 46.	203	2.13
46. - 48.	148	1.21
48. - 50.	120	.97
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	56	.45
200. - 400.	0	.00
400. - 600.	2	.02
600. - 800.	148	1.20
800. - 1000.	3218	26.12
1000. - 1200.	664	5.39
1200. - 1400.	1057	8.58
1400. - 1600.	1213	9.85
1600. - 1800.	2580	20.94
1800. - 2000.	1267	10.28
2000. - 2200.	1201	9.75
2200. - 2400.	662	5.37
2400. - 2600.	182	1.48
2600. - 2800.	67	.54
2800. - 3000.	3	.02
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-4.

1972 FORD/CAT 1150, 573 CID V8, 24000 LB. GVW VAN, TRUCK [illegible]

RUN DURATION 23.66 MIN. IDLE SPEED 550 RPM 12/11/73, RUN 7

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1548.5591	523.3500	4.7382	12200	2930.0000	605.0000	2325.0000
FF	2	16.1742	14.9073	.2699	3050	70.7333	.4253	70.3080
SPD	3	18.2440	12.9243	.1170	12200	48.7155	.0000	48.7155

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	945	30.98
3	335	10.98
4	1421	46.59
5	348	11.41
6	0	.00
7	1	.03

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
<		
. - 4.	648	21.25
4. - 8.	649	21.28
8. - 12.	341	11.18
12. - 16.	254	8.33
16. - 20.	215	7.05
20. - 24.	164	5.38
24. - 28.	147	4.82
28. - 32.	119	3.90
32. - 36.	127	4.16
36. - 40.	100	3.28
40. - 44.	85	2.79
44. - 48.	42	1.38
48. - 52.	51	1.67
52. - 56.	60	1.97
56. - 60.	26	.85
60. - 64.	15	.49
64. - 68.	5	.16
68. - 72.	2	.07
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
<		
. - 2.	2309	18.93
2. - 4.	218	1.79
4. - 6.	241	1.98
6. - 8.	344	2.82
8. - 10.	397	3.25
10. - 12.	468	3.84
12. - 14.	649	5.32
14. - 16.	341	2.80
16. - 18.	710	5.82
18. - 20.	638	5.23
20. - 22.	992	8.13
22. - 24.	1033	8.47
24. - 26.	665	5.45
26. - 28.	846	6.93
28. - 30.	631	5.17
30. - 32.	152	1.25
32. - 34.	240	1.97
34. - 36.	80	.66
36. - 38.	126	1.03
38. - 40.	185	1.52
40. - 42.	177	1.45
42. - 44.	163	1.34
44. - 46.	328	2.69
46. - 48.	253	[illegible]
48. - 50.	14	.11
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
<		
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	162	1.33
800. - 1000.	2978	24.41
1000. - 1200.	596	4.89
1200. - 1400.	1032	8.46
1400. - 1600.	1326	10.87
1600. - 1800.	1516	12.43
1800. - 2000.	1777	14.57
2000. - 2200.	1310	10.74
2200. - 2400.	1103	9.04
2400. - 2600.	265	2.17
2600. - 2800.	123	1.01
2800. - 3000.	12	.10
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-3.

[illegible]

[illegible]

[illegible]

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1881.7881	547.3008	5.2137	10600	3115.0000	660.0000	2455.0000
FF	2	18.1887	17.4098	.3383	2650	22.8882	.1275	22.7607
SPD	3	21.0176	13.2217	.1286	10600	52.8750	.0000	52.8750

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	638	24.08
3	377	14.23
4	1328	50.11
5	300	11.32
6	0	.00
7	5	.19

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	550	20.75
4. - 8.	421	15.89
8. - 12.	247	9.32
12. - 16.	236	8.91
16. - 20.	217	8.19
20. - 24.	171	6.45
24. - 28.	150	5.66
28. - 32.	107	4.04
32. - 36.	101	3.81
36. - 40.	69	2.60
40. - 44.	88	3.32
44. - 48.	62	2.34
48. - 52.	45	1.70
52. - 56.	52	1.96
56. - 60.	32	1.21
60. - 64.	32	1.21
64. - 68.	48	1.81
68. - 72.	13	.49
72. - 76.	6	.23
76. - 80.	0	.00
80. - 84.	1	.04
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	1287	12.14
2. - 4.	203	1.92
4. - 6.	253	2.39
6. - 8.	241	2.27
8. - 10.	334	3.15
10. - 12.	399	3.76
12. - 14.	399	3.76
14. - 16.	388	3.66
16. - 18.	398	3.75
18. - 20.	448	4.23
20. - 22.	1040	9.81
22. - 24.	982	9.26
24. - 26.	757	7.14
26. - 28.	872	8.23
28. - 30.	890	8.40
30. - 32.	414	3.91
32. - 34.	73	.69
34. - 36.	44	.42
36. - 38.	33	.31
38. - 40.	39	.37
40. - 42.	32	.30
42. - 44.	64	.60
44. - 46.	254	2.40
46. - 48.	169	1.59
48. - 50.	282	2.66
50. - 52.	287	2.71
52. - 54.	18	.17
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	110	1.04
800. - 1000.	1910	18.02
1000. - 1200.	526	4.96
1200. - 1400.	740	6.98
1400. - 1600.	1479	13.95
1600. - 1800.	1209	11.41
1800. - 2000.	1518	14.32
2000. - 2200.	1311	12.37
2200. - 2400.	722	6.81
2400. - 2600.	774	7.30
2600. - 2800.	204	1.92
2800. - 3000.	80	.75
3000. - 3200.	17	.16
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-6.
1972 FORD/CAT 1150, 573 CID V8, 24000 LB. GVW VAN, TRUCK C-1
RUN DURATION 23.85 MIN. IDLE SPEED 550 RPM

12/11/73, RUN 9

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1604.5693	541.5541	4.8870	12280	4855.0000	55.0000	4800.0000
FF	2	17.0134	16.6324	.3002	3070	236.8633	.2917	236.5716
SPD	3	18.1975	12.5547	.1133	12280	69.8655	.0000	69.8655

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	889	28.96
3	499	16.25
4	1406	45.80
5	262	8.53
6	0	.00
7	4	.13

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	655	21.34
4. - 8.	600	19.54
8. - 12.	315	10.26
12. - 16.	278	9.06
16. - 20.	200	6.51
20. - 24.	206	6.71
24. - 28.	198	6.45
28. - 32.	122	3.97
32. - 36.	108	3.52
36. - 40.	73	2.38
40. - 44.	75	2.44
44. - 48.	52	1.69
48. - 52.	39	1.27
52. - 56.	38	1.24
56. - 60.	39	1.27
60. - 64.	30	.98
64. - 68.	22	.72
68. - 72.	10	.33
72. - 76.	2	.07
76. - 80.	2	.07
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	1	.03
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	3	.10
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	2018	16.43
2. - 4.	349	2.84
4. - 6.	411	3.35
6. - 8.	433	3.53
8. - 10.	350	2.85
10. - 12.	412	3.36
12. - 14.	607	4.94
14. - 16.	429	3.49
16. - 18.	721	5.87
18. - 20.	634	5.16
20. - 22.	714	5.81
22. - 24.	864	7.04
24. - 26.	1058	8.62
26. - 28.	1041	8.48
28. - 30.	647	5.27
30. - 32.	411	3.35
32. - 34.	155	1.26
34. - 36.	88	.72
36. - 38.	54	.44
38. - 40.	115	.94
40. - 42.	111	.90
42. - 44.	126	1.03
44. - 46.	230	1.87
46. - 48.	176	1.43
48. - 50.	69	.56
50. - 52.	50	.41
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	2	.02
200. - 400.	1	.01
400. - 600.	7	.06
600. - 800.	123	1.00
800. - 1000.	2748	22.38
1000. - 1200.	559	4.55
1200. - 1400.	966	7.87
1400. - 1600.	1124	9.15
1600. - 1800.	1632	13.29
1800. - 2000.	1913	15.58
2000. - 2200.	1536	12.51
2200. - 2400.	932	7.59
2400. - 2600.	471	3.84
2600. - 2800.	207	1.69
2800. - 3000.	41	.33
3000. - 3200.	3	.02
3200. - 3400.	0	.00
3400. - 3600.	2	.02
3600. - 3800.	1	.01
3800. - 4000.	2	.02
4000. - 4200.	1	.01
4200. - 4400.	1	.01
4400. - 4600.	4	.03
4600. - 4800.	2	.02
4800. - 5000.	2	.02

TABLE C-7.

1972 FORD/CAT 1150, 573 CID V8, 24000 LB. GVW VAN, TRUCK D-1
RUN DURATION 22.48 MIN. IDLE SPEED 550 RPM. 12/19/73 RUN 10

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1546.0710	508.7412	4.2573	14280	3230.0000	645.0000	2585.0000
FF	2	15.3545	16.0739	.2690	3570	75.3823	.1027	75.2796
SPD	3	17.6954	13.0930	.1096	14280	50.4075	.0000	50.4075

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	884	24.76
3	318	8.91
4	2052	57.48
5	315	8.82
6	0	.00
7	1	.03

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1190	33.33
4. - 8.	386	10.81
8. - 12.	396	11.09
12. - 16.	326	9.13
16. - 20.	286	8.01
20. - 24.	196	5.49
24. - 28.	168	4.71
28. - 32.	133	3.73
32. - 36.	88	2.46
36. - 40.	69	1.93
40. - 44.	34	.95
44. - 48.	38	1.06
48. - 52.	52	1.46
52. - 56.	57	1.60
56. - 60.	64	1.79
60. - 64.	36	1.01
64. - 68.	34	.95
68. - 72.	13	.36
72. - 76.	4	.11
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	3196	22.38
2. - 4.	207	1.45
4. - 6.	239	1.67
6. - 8.	324	2.27
8. - 10.	217	1.52
10. - 12.	396	2.77
12. - 14.	576	4.03
14. - 16.	479	3.35
16. - 18.	759	5.32
18. - 20.	927	6.49
20. - 22.	1102	7.72
22. - 24.	1531	10.72
24. - 26.	2214	15.50
26. - 28.	384	2.69
28. - 30.	131	.92
30. - 32.	62	.43
32. - 34.	264	1.85
34. - 36.	61	.43
36. - 38.	41	.29
38. - 40.	35	.25
40. - 42.	57	.40
42. - 44.	58	.41
44. - 46.	270	1.89
46. - 48.	447	3.13
48. - 50.	291	2.04
50. - 52.	12	.08
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	146	1.02
800. - 1000.	3128	21.90
1000. - 1200.	819	5.74
1200. - 1400.	1344	9.41
1400. - 1600.	1624	11.37
1600. - 1800.	3362	23.54
1800. - 2000.	1244	8.71
2000. - 2200.	554	3.88
2200. - 2400.	1323	9.26
2400. - 2600.	543	3.80
2600. - 2800.	139	.97
2800. - 3000.	37	.26
3000. - 3200.	13	.09
3200. - 3400.	4	.03
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-8.

1972 FORD/CAT [illegible]

[illegible]

VAR	EL	[illegible]	[illegible]	[illegible]	MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	[illegible]	[illegible]	[illegible]	[illegible]	11320	[illegible]	[illegible]	[illegible]
FF	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SPD	3	[illegible]	[illegible]	[illegible]	.1282	11320	52.1700	.0000	52.1700

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	13	.[illegible]
2	795	28.09
3	234	8.27
4	1470	51.94
5	304	10.74
6	0	.00
7	3	.11

PERCENT OF TIME [illegible] AT

LEVEL <	COUNT	PERCENT
. - 4.	803	28.37
4. - 8.	337	11.91
8. - 12.	214	7.56
12. - 16.	232	8.20
16. - 20.	225	7.95
20. - 24.	190	6.71
24. - 28.	131	4.63
28. - 32.	149	5.27
32. - 36.	109	3.85
36. - 40.	73	2.58
40. - 44.	51	1.80
44. - 48.	42	1.48
48. - 52.	29	1.02
52. - 56.	27	.95
56. - 60.	44	1.55
60. - 64.	29	1.02
64. - 68.	48	1.70
68. - 72.	58	2.05
72. - 76.	25	.88
76. - 80.	11	.39
80. - 84.	3	.11
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME [illegible] AT

LEVEL <	COUNT	PERCENT
. - 2.	2041	18.03
2. - 4.	176	1.55
4. - 6.	184	1.63
6. - 8.	202	1.78
8. - 10.	204	1.80
10. - 12.	410	3.62
12. - 14.	653	5.77
14. - 16.	520	4.59
16. - 18.	481	4.25
18. - 20.	520	4.59
20. - 22.	689	6.09
22. - 24.	634	5.60
24. - 26.	972	8.59
26. - 28.	1537	13.58
28. - 30.	588	5.19
30. - 32.	236	2.08
32. - 34.	26	.23
34. - 36.	52	.46
36. - 38.	57	.50
38. - 40.	35	.31
40. - 42.	35	.31
42. - 44.	31	.27
44. - 46.	118	1.04
46. - 48.	415	3.67
48. - 50.	396	3.50
50. - 52.	106	.94
52. - 54.	2	.02
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	19	.17
800. - 1000.	2716	23.94
1000. - 1200.	675	5.96
1200. - 1400.	753	6.65
1400. - 1600.	942	8.32
1600. - 1800.	1318	11.64
1800. - 2000.	2210	19.52
2000. - 2200.	833	7.36
2200. - 2400.	946	8.35
2400. - 2600.	727	6.42
2600. - 2800.	117	1.03
2800. - 3000.	44	.39
3000. - 3200.	16	.14
3200. - 3400.	10	.09
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-9.

1972 FORD/CAT 1150, 573 CID V8, 24000 LB. GVW VAN, TRUCK D-1
RUN DURATION 21.60 MIN. IDLE SPEED 550 RPM. 12/19/73 RUN 12

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1635.8970	516.7346	4.9449	10920	3230.0000	805.0000	2425.0000
FF	2	20.4035	20.4277	.3910	2730	92.1137	.3322	91.7814
SPD	3	20.2272	13.0636	.1250	10920	51.3945	.0000	51.3945

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	3	.11
2	676	24.76
3	351	12.86
4	1399	51.25
5	301	11.03
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	634	23.22
4. - 8.	404	14.80
8. - 12.	245	8.97
12. - 16.	207	7.58
16. - 20.	188	6.89
20. - 24.	171	6.26
24. - 28.	172	6.30
28. - 32.	140	5.13
32. - 36.	81	2.97
36. - 40.	75	2.75
40. - 44.	59	2.16
44. - 48.	28	1.03
48. - 52.	37	1.36
52. - 56.	41	1.50
56. - 60.	35	1.28
60. - 64.	42	1.54
64. - 68.	24	.88
68. - 72.	43	1.58
72. - 76.	36	1.32
76. - 80.	40	1.47
80. - 84.	13	.48
84. - 88.	10	.37
88. - 92.	3	.11
92. - 96.	2	.07
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT LEVEL <	COUNT	PERCENT
. - 2.	1465	13.42
2. - 4.	241	2.21
4. - 6.	239	2.19
6. - 8.	334	3.06
8. - 10.	272	2.49
10. - 12.	346	3.17
12. - 14.	484	4.43
14. - 16.	319	2.92
16. - 18.	460	4.21
18. - 20.	645	5.91
20. - 22.	1010	9.25
22. - 24.	941	8.62
24. - 26.	837	7.66
26. - 28.	1505	13.78
28. - 30.	422	3.86
30. - 32.	119	1.09
32. - 34.	25	.23
34. - 36.	40	.37
36. - 38.	68	.62
38. - 40.	30	.27
40. - 42.	40	.37
42. - 44.	90	.82
44. - 46.	172	1.58
46. - 48.	442	4.05
48. - 50.	319	2.92
50. - 52.	55	.50
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	0	.00
800. - 1000.	2261	20.71
1000. - 1200.	424	3.88
1200. - 1400.	736	6.74
1400. - 1600.	1396	12.78
1600. - 1800.	1341	12.28
1800. - 2000.	2245	20.56
2000. - 2200.	813	7.45
2200. - 2400.	948	8.68
2400. - 2600.	564	5.16
2600. - 2800.	147	1.35
2800. - 3000.	33	.30
3000. - 3200.	8	.07
3200. - 3400.	4	.04
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-2

1970 IHC 58,000-LB GCW TRACTOR
WITH CUMMINS V903 ENGINE

TABLE C-10.
1970 IH/CUMMINS V903, 903 CID [illegible] 58000 LB GCW TRACTOR, TK. D-2
RUN DURATION 22.75 MIN. IDLE SPEED 750 RPM, TEST WEIGHT 42800 LB, 1/17/74 RUN 1

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1371.6970	585.5186	5.3993	11760	2660.0000	370.0000	2290.0000
FF	2	33.5793	37.6414	.6942	2940	144.9160	.2654	144.6505
SPD	3	19.2829	15.1527	.1397	11760	58.1000	.0000	58.1000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	914	31.09
2	526	17.89
3	1067	36.29
4	144	4.90
5	289	9.83
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	665	22.62
4. - 8.	591	20.10
8. - 12.	126	4.29
12. - 16.	92	3.13
16. - 20.	89	3.03
20. - 24.	88	2.99
24. - 28.	93	3.16
28. - 32.	102	3.47
32. - 36.	89	3.03
36. - 40.	84	2.86
40. - 44.	46	1.56
44. - 48.	46	1.56
48. - 52.	44	1.50
52. - 56.	55	1.87
56. - 60.	53	1.80
60. - 64.	55	1.87
64. - 68.	37	1.26
68. - 72.	37	1.26
72. - 76.	57	1.94
76. - 80.	42	1.43
80. - 84.	46	1.56
84. - 88.	39	1.33
88. - 92.	42	1.43
92. - 96.	18	.61
96. - 100.	23	.78
100. - 104.	38	1.29
104. - 108.	26	.88
108. - 112.	28	.95
112. - 116.	46	1.56
116. - 120.	44	1.50
120. - 124.	33	1.12
124. - 128.	18	.61
128. - 132.	10	.34

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2547	21.66
2. - 4.	253	2.15
4. - 6.	311	2.64
6. - 8.	350	2.98
8. - 10.	428	3.64
10. - 12.	334	2.84
12. - 14.	322	2.74
14. - 16.	366	3.11
16. - 18.	513	4.36
18. - 20.	625	5.31
20. - 22.	442	3.76
22. - 24.	482	4.10
24. - 26.	596	5.07
26. - 28.	769	6.54
28. - 30.	777	6.61
30. - 32.	753	6.40
32. - 34.	470	4.00
34. - 36.	135	1.15
36. - 38.	118	1.00
38. - 40.	97	.82
40. - 42.	53	.45
42. - 44.	63	.54
44. - 46.	36	.31
46. - 48.	68	.58
48. - 50.	178	1.51
50. - 52.	246	2.09
52. - 54.	272	2.31
54. - 56.	139	1.18
56. - 58.	16	.14
58. - 60.	1	.01

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	3	.03
400. - 600.	1150	9.78
600. - 800.	2205	18.75
800. - 1000.	651	5.54
1000. - 1200.	570	4.85
1200. - 1400.	783	6.66
1400. - 1600.	1227	10.43
1600. - 1800.	1540	13.10
1800. - 2000.	1995	16.96
2000. - 2200.	999	8.49
2200. - 2400.	348	2.96
2400. - 2600.	264	2.24
2600. - 2800.	25	.21
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE C-11.
1970 IH/CUMMINS V903, 903 CID V8, 58000 LB GCW TRACTOR, TK, D-2
RUN DURATION 22.28 MIN. IDLE SPEED 750 RPM, TEST WEIGHT 42800 LB, 1/17/74 RUN 2

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1437.7861	599.7963	5.6078	11440	2665.0000	245.0000	2420.0000
FF	2	39.7842	43.4940	.8133	2860	155.6544	.0757	155.5787
SPD	3	19.8204	15.0794	.1410	11440	58.7000	.0000	58.7000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	967	33.81
2	308	10.77
3	1260	44.06
4	44	1.54
5	274	9.58
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	555	19.41
4. - 8.	568	19.86
8. - 12.	103	3.60
12. - 16.	82	2.87
16. - 20.	85	2.97
20. - 24.	69	2.41
24. - 28.	62	2.17
28. - 32.	110	3.85
32. - 36.	87	3.04
36. - 40.	88	3.08
40. - 44.	76	2.66
44. - 48.	63	2.20
48. - 52.	49	1.71
52. - 56.	62	2.17
56. - 60.	49	1.71
60. - 64.	43	1.50
64. - 68.	39	1.36
68. - 72.	43	1.50
72. - 76.	27	.94
76. - 80.	34	1.19
80. - 84.	41	1.43
84. - 88.	26	.91
88. - 92.	42	1.47
92. - 96.	22	.77
96. - 100.	24	.84
100. - 104.	24	.84
104. - 108.	26	.91
108. - 112.	29	1.01
112. - 116.	19	.66
116. - 120.	46	1.61
120. - 124.	38	1.33
124. - 128.	66	2.31
128. - 132.	40	1.40

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2064	18.04
2. - 4.	313	2.74
4. - 6.	365	3.19
6. - 8.	444	3.88
8. - 10.	492	4.30
10. - 12.	446	3.90
12. - 14.	429	3.75
14. - 16.	347	3.03
16. - 18.	291	2.54
18. - 20.	395	3.45
20. - 22.	348	3.04
22. - 24.	450	3.93
24. - 26.	792	6.92
26. - 28.	979	8.56
28. - 30.	796	6.96
30. - 32.	597	5.22
32. - 34.	400	3.50
34. - 36.	275	2.40
36. - 38.	99	.87
38. - 40.	45	.39
40. - 42.	22	.19
42. - 44.	30	.26
44. - 46.	43	.38
46. - 48.	107	.94
48. - 50.	221	1.93
50. - 52.	202	1.77
52. - 54.	223	1.95
54. - 56.	149	1.30
56. - 58.	72	.63
58. - 60.	4	.03

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	15	.13
400. - 600.	1159	10.13
600. - 800.	1860	16.26
800. - 1000.	563	4.92
1000. - 1200.	469	4.10
1200. - 1400.	486	4.25
1400. - 1600.	905	7.91
1600. - 1800.	1919	16.77
1800. - 2000.	2050	17.92
2000. - 2200.	1143	9.99
2200. - 2400.	620	5.42
2400. - 2600.	219	1.91
2600. - 2800.	32	.28
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-12.

1970 IH/CUMMINS V903, 903 CID VEE 58000 LB GCW TRACTOR, TR. D-2

RUN DURATION 23.17 MIN. IDLE SPEED 750 RPM, TEST WEIGHT 42800 LBS, 1/18/74 RUN 6

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1477.8665	564.9139	5.1484	12040	2680.0000	380.0000	2300.0000
FF	2	32.1182	34.6420	.6314	3010	171.6734	.1038	171.5696
SPD	3	12.8771	13.1611	.1199	12040	60.7000	.0000	60.7000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1054	35.02
2	474	15.75
3	1166	38.74
4	315	10.47
5	0	.00
6	0	.00
7	1	.03

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	482	16.01
4. - 8.	65	<1.69
8. - 12.	109	3.62
12. - 16.	128	4.25
16. - 20.	135	4.49
20. - 24.	133	4.42
24. - 28.	120	3.99
28. - 32.	103	3.42
32. - 36.	122	4.05
36. - 40.	130	4.32
40. - 44.	117	3.89
44. - 48.	85	2.82
48. - 52.	75	2.49
52. - 56.	56	1.86
56. - 60.	48	1.33
60. - 64.	31	1.03
64. - 68.	35	1.16
68. - 72.	28	.93
72. - 76.	27	.90
76. - 80.	18	.60
80. - 84.	19	.63
84. - 88.	23	.76
88. - 92.	25	.83
92. - 96.	33	1.10
96. - 100.	23	.76
100. - 104.	30	1.00
104. - 108.	31	1.03
108. - 112.	26	.86
112. - 116.	49	1.63
116. - 120.	65	2.16
120. - 124.	17	.56
124. - 128.	14	.47
128. - 132.	11	.37

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	3555	29.53
2. - 4.	631	5.24
4. - 6.	584	4.85
6. - 8.	626	5.20
8. - 10.	742	6.16
10. - 12.	558	4.63
12. - 14.	572	4.75
14. - 16.	560	4.65
16. - 18.	568	4.72
18. - 20.	486	4.04
20. - 22.	533	4.43
22. - 24.	482	4.00
24. - 26.	383	3.18
26. - 28.	339	2.82
28. - 30.	291	2.42
30. - 32.	181	1.50
32. - 34.	75	.62
34. - 36.	58	.48
36. - 38.	54	.45
38. - 40.	57	.47
40. - 42.	78	.65
42. - 44.	84	.70
44. - 46.	105	.87
46. - 48.	120	1.00
48. - 50.	65	.54
50. - 52.	71	.59
52. - 54.	92	.76
54. - 56.	56	.47
56. - 58.	26	.22
58. - 60.	6	.05

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	3	.02
400. - 600.	217	1.80
600. - 800.	2388	19.83
800. - 1000.	403	3.35
1000. - 1200.	897	7.45
1200. - 1400.	1097	9.11
1400. - 1600.	1387	11.52
1600. - 1800.	1418	11.78
1800. - 2000.	1543	12.82
2000. - 2200.	1760	14.62
2200. - 2400.	659	5.47
2400. - 2600.	175	1.45
2600. - 2800.	83	.69
2800. - 3000.	10	.08
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-13.
1970 IH/CUMMINS V903, 903 CID V8, 58000 LB GCW TRACTOR, TK, D-2
RUN DURATION 22.83 MIN, IDLE SPEED 750 RPM, TEST WEIGHT 42800 LB, 1/18/74 RUN 6

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1466.6880	554.0631	5.0834	11880	2680.0000	315.0000	2365.0000
FF	2	32.0283	34.5704	.6343	2970	269.6287	.3211	269.3076
SPD	3	12.6443	12.5215	.1149	11880	61.1000	.0000	61.1000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	882	29.70
2	553	18.62
3	1221	41.11
4	33	1.11
5	281	9.46
6	0	.00
7	0	.00

PERCENT OF TIME LEVEL <	FF AT COUNT	PERCENT
. - 4.	450	15.15
4. - 8.	634	21.35
8. - 12.	90	3.03
12. - 16.	131	4.41
16. - 20.	137	4.61
20. - 24.	200	6.73
24. - 28.	147	4.95
28. - 32.	106	3.57
32. - 36.	96	3.23
36. - 40.	104	3.50
40. - 44.	112	3.77
44. - 48.	94	3.16
48. - 52.	64	2.15
52. - 56.	50	1.68
56. - 60.	36	1.21
60. - 64.	38	1.28
64. - 68.	33	1.11
68. - 72.	38	1.28
72. - 76.	44	1.48
76. - 80.	42	1.41
80. - 84.	21	.71
84. - 88.	24	.81
88. - 92.	16	.54
92. - 96.	19	.64
96. - 100.	21	.71
100. - 104.	15	.51
104. - 108.	14	.47
108. - 112.	7	.24
112. - 116.	29	.98
116. - 120.	31	1.04
120. - 124.	34	1.14
124. - 128.	35	1.18
128. - 132.	16	.54

PERCENT OF TIME LEVEL <	MS AT COUNT	PERCENT
. - 2.	3447	29.02
2. - 4.	674	5.67
4. - 6.	748	6.30
6. - 8.	547	4.60
8. - 10.	530	4.46
10. - 12.	498	4.19
12. - 14.	584	4.92
14. - 16.	580	4.88
16. - 18.	498	4.19
18. - 20.	497	4.18
20. - 22.	528	4.44
22. - 24.	595	5.01
24. - 26.	581	4.89
26. - 28.	451	3.80
28. - 30.	233	1.96
30. - 32.	85	.72
32. - 34.	92	.77
34. - 36.	54	.45
36. - 38.	51	.43
38. - 40.	64	.54
40. - 42.	78	.66
42. - 44.	90	.76
44. - 46.	75	.63
46. - 48.	65	.55
48. - 50.	70	.59
50. - 52.	84	.71
52. - 54.	38	.32
54. - 56.	23	.19
56. - 58.	15	.13
58. - 60.	3	.03

PERCENT OF TIME LEVEL <	RPM AT COUNT	PERCENT
. - 200.	0	.00
200. - 400.	7	.06
400. - 600.	178	1.50
600. - 800.	2428	20.44
800. - 1000.	504	4.24
1000. - 1200.	826	6.95
1200. - 1400.	890	7.49
1400. - 1600.	935	7.87
1600. - 1800.	2162	18.20
1800. - 2000.	1922	16.18
2000. - 2200.	1359	11.44
2200. - 2400.	377	3.17
2400. - 2600.	160	1.35
2600. - 2800.	109	.92
2800. - 3000.	23	.19
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-14.
1970 IH/CUMMINS V903. 903 CID V8. 56000 LB GCW TRACTOR. TR. D-2
RUN DURATION 22.13 MIN. IDLE SPEED 750 RPM. TEST WEIGHT 42800 LB. 1/21/74 MOD. 7

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1525.7412	622.6947	5.9264	11040	2950.0000	195.0000	2755.0000
FF	2	32.8830	34.9451	.6652	2760	140.6068	.2608	140.3460
SPD	3	19.5326	13.4320	.1278	11040	52.8000	.0000	52.8000

GEAR	PERCENT OF TIME GEAR SHIFT POSITION AT COUNT	PERCENT
1	813	29.46
2	573	20.76
3	1059	38.37
4	146	5.29
5	169	6.12
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	453	16.41
4. - 8.	597	21.63
8. - 12.	141	5.11
12. - 16.	98	3.55
16. - 20.	94	3.41
20. - 24.	109	3.95
24. - 28.	115	4.17
28. - 32.	87	3.15
32. - 36.	106	3.84
36. - 40.	96	3.48
40. - 44.	66	2.39
44. - 48.	75	2.72
48. - 52.	72	2.61
52. - 56.	72	2.61
56. - 60.	63	2.28
60. - 64.	46	1.67
64. - 68.	31	1.12
68. - 72.	37	1.34
72. - 76.	35	1.27
76. - 80.	33	1.20
80. - 84.	18	.65
84. - 88.	25	.91
88. - 92.	34	1.23
92. - 96.	22	.80
96. - 100.	24	.87
100. - 104.	28	1.01
104. - 108.	38	1.38
108. - 112.	17	.62
112. - 116.	21	.76
116. - 120.	28	1.01
120. - 124.	28	1.01
124. - 128.	18	.65
128. - 132.	23	.83

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	1566	14.18
2. - 4.	292	2.64
4. - 6.	472	4.28
6. - 8.	412	3.73
8. - 10.	415	3.76
10. - 12.	355	3.22
12. - 14.	393	3.56
14. - 16.	663	6.01
16. - 18.	583	5.28
18. - 20.	548	4.96
20. - 22.	338	3.06
22. - 24.	463	4.19
24. - 26.	632	5.72
26. - 28.	779	7.06
28. - 30.	913	8.27
30. - 32.	599	5.43
32. - 34.	291	2.64
34. - 36.	165	1.49
36. - 38.	102	.92
38. - 40.	100	.91
40. - 42.	142	1.29
42. - 44.	174	1.58
44. - 46.	170	1.54
46. - 48.	248	2.25
48. - 50.	107	.97
50. - 52.	100	.91
52. - 54.	18	.16
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	14	.13
400. - 600.	387	3.51
600. - 800.	2068	18.73
800. - 1000.	603	5.46
1000. - 1200.	632	5.72
1200. - 1400.	715	6.48
1400. - 1600.	767	6.95
1600. - 1800.	1209	10.95
1800. - 2000.	1555	14.09
2000. - 2200.	1593	14.43
2200. - 2400.	928	8.41
2400. - 2600.	388	3.51
2600. - 2800.	137	1.24
2800. - 3000.	43	.39
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-15.
1970 IH/CUMMINS V903, 903 CID V8, 5[illegible] GCW TRACTOR, TK. [illegible]
RUN DURATION 21.80 MIN. IDLE SPEED 750 RPM, TEST WEIGHT 42800 LB, 1/21/74 RUN 8

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1535.0754	657.6090	6.1917	11280	2935.0000	245.0000	2690.0000
FF	2	29.2726	30.8817	.5815	2820	151.0014	.1524	150.8490
SPD	3	19.7614	14.5204	.1367	11280	53.8000	.0000	53.8000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	875	31.03
2	430	15.25
3	1217	43.16
4	40	1.42
5	258	9.15
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	533	18.90
4. - 8.	607	21.52
8. - 12.	130	4.61
12. - 16.	164	5.82
16. - 20.	107	3.79
20. - 24.	102	3.62
24. - 28.	86	3.05
28. - 32.	78	2.77
32. - 36.	68	2.41
36. - 40.	73	2.59
40. - 44.	65	2.30
44. - 48.	88	3.12
48. - 52.	74	2.62
52. - 56.	74	2.62
56. - 60.	45	1.60
60. - 64.	56	1.99
64. - 68.	42	1.49
68. - 72.	56	1.99
72. - 76.	53	1.88
76. - 80.	40	1.42
80. - 84.	39	1.38
84. - 88.	43	1.52
88. - 92.	32	1.13
92. - 96.	43	1.52
96. - 100.	33	1.17
100. - 104.	26	.92
104. - 108.	32	1.13
108. - 112.	18	.64
112. - 116.	5	.18
116. - 120.	2	.07
120. - 124.	1	.04
124. - 128.	2	.07
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	1808	16.03
2. - 4.	330	2.93
4. - 6.	595	5.27
6. - 8.	547	4.85
8. - 10.	252	2.23
10. - 12.	320	2.84
12. - 14.	363	3.22
14. - 16.	510	4.52
16. - 18.	491	4.35
18. - 20.	508	4.50
20. - 22.	342	3.03
22. - 24.	421	3.73
24. - 26.	543	4.81
26. - 28.	692	6.13
28. - 30.	849	7.53
30. - 32.	792	7.02
32. - 34.	566	5.02
34. - 36.	183	1.[illegible]
36. - 38.	42	.37
38. - 40.	41	.36
40. - 42.	33	.29
42. - 44.	35	.31
44. - 46.	48	.43
46. - 48.	265	2.35
48. - 50.	471	4.18
50. - 52.	206	1.83
52. - 54.	27	.24
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	9	.08
400. - 600.	325	2.88
600. - 800.	2576	22.84
800. - 1000.	565	5.01
1000. - 1200.	566	5.02
1200. - 1400.	505	4.48
1400. - 1600.	684	6.06
1600. - 1800.	835	7.40
1800. - 2000.	1707	15.13
2000. - 2200.	1636	14.50
2200. - 2400.	1094	9.70
2400. - 2600.	499	4.42
2600. - 2800.	225	1.99
2800. - 3000.	54	.48
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - [illegible]00.	0	.00

TABLE C-16.

1970 IH/CUMMINS V903, 903 CID VH, 58000 LB GCW TRACTOR, TR. D-2
RUN DURATION 22.91 MIN. IDLE SPEED 750 RPM, TEST WEIGHT 42800 LB, 1/21/74 RUN 10

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1514.7942	625.8705	5.7812	11720	2930.0000	360.0000	2570.0000
FF	2	29.2898	30.9649	.5721	2930	134.8144	.1897	134.6247
SPD	3	19.0090	13.9459	.1288	11720	54.9000	.0000	54.9000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	948	32.35
2	331	11.30
3	1336	45.60
4	47	1.60
5	255	8.70
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	455	15.53
4. - 8.	611	20.85
8. - 12.	144	4.91
12. - 16.	166	5.67
16. - 20.	163	5.56
20. - 24.	168	5.73
24. - 28.	107	3.65
28. - 32.	112	3.82
32. - 36.	110	3.75
36. - 40.	120	4.10
40. - 44.	79	2.70
44. - 48.	61	2.08
48. - 52.	54	1.84
52. - 56.	54	1.84
56. - 60.	56	1.91
60. - 64.	41	1.40
64. - 68.	34	1.16
68. - 72.	26	.89
72. - 76.	28	.96
76. - 80.	33	1.13
80. - 84.	34	1.16
84. - 88.	35	1.19
88. - 92.	30	1.02
92. - 96.	49	1.67
96. - 100.	18	.61
100. - 104.	24	.82
104. - 108.	17	.58
108. - 112.	35	1.19
112. - 116.	35	1.19
116. - 120.	20	.68
120. - 124.	2	.07
124. - 128.	5	.17
128. - 132.	2	.07

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2002	17.08
2. - 4.	369	3.15
4. - 6.	508	4.33
6. - 8.	528	4.51
8. - 10.	410	3.50
10. - 12.	385	3.28
12. - 14.	394	3.36
14. - 16.	248	2.12
16. - 18.	468	3.99
18. - 20.	608	5.19
20. - 22.	529	4.51
22. - 24.	389	3.32
24. - 26.	765	6.53
26. - 28.	1050	8.96
28. - 30.	990	8.45
30. - 32.	482	4.11
32. - 34.	285	2.43
34. - 36.	105	.90
36. - 38.	39	.33
38. - 40.	65	[illegible]
40. - 42.	160	1.37
42. - 44.	182	1.55
44. - 46.	179	1.53
46. - 48.	256	.18
48. - 50.	130	1.11
50. - 52.	135	1.15
52. - 54.	52	.44
54. - 56.	7	.06
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2	.02
400. - 600.	294	2.51
600. - 800.	2501	21.34
800. - 1000.	673	5.74
1000. - 1200.	617	5.26
1200. - 1400.	649	5.54
1400. - 1600.	690	5.89
1600. - 1800.	1194	10.19
1800. - 2000.	2074	17.70
2000. - 2200.	1585	13.52
2200. - 2400.	832	7.10
2400. - 2600.	385	3.28
2600. - 2800.	159	1.36
2800. - 3000.	65	.55
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-3

1971 IHC 58,000-LB GCW TRACTOR
WITH DETROIT DIESEL 6-71 ENGINE

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TABLE C-17.
1971 IMZDETROIT DIESEL 8-71, [illegible] 15 TRACTOR, GCW 58000 LB., TRUCK C-3
RUN DURATION [illegible] MIN., [illegible] 750 RPM, TEST WT. 41500 LB., 1/22/74 RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1429.2905	509.6887	4.8884	10880	2605.0000	270.0000	2335.0000
FF	2	26.5567	25.9703	.4980	2720	91.7578	.0622	91.6956
SPD	3	21.5338	12.9887	.1245	10880	55.6500	.0000	55.6500

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	367	13.49
2	616	22.65
3	1224	45.00
4	150	5.51
5	323	11.87
6	20	.74
7	0	.00

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
<		
. - 4.	630	23.16
4. - 8.	278	10.22
8. - 12.	128	4.71
12. - 16.	213	7.83
16. - 20.	229	8.42
20. - 24.	158	5.81
24. - 28.	111	4.08
28. - 32.	92	3.38
32. - 36.	85	3.12
36. - 40.	71	2.61
40. - 44.	66	2.43
44. - 48.	57	2.10
48. - 52.	103	3.79
52. - 56.	78	2.87
56. - 60.	39	1.43
60. - 64.	38	1.40
64. - 68.	43	1.58
68. - 72.	32	1.18
72. - 76.	36	1.32
76. - 80.	54	1.99
80. - 84.	78	2.87
84. - 88.	39	1.43
88. - 92.	62	2.28
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
<		
. - 2.	945	8.69
2. - 4.	284	2.61
4. - 6.	281	2.58
6. - 8.	182	1.67
8. - 10.	409	3.76
10. - 12.	355	3.26
12. - 14.	391	3.59
14. - 16.	641	5.89
16. - 18.	653	6.00
18. - 20.	739	6.79
20. - 22.	820	7.54
22. - 24.	670	6.16
24. - 26.	694	6.38
26. - 28.	999	9.18
28. - 30.	1001	9.20
30. - 32.	341	3.13
32. - 34.	297	2.73
34. - 36.	77	.71
36. - 38.	12	.11
38. - 40.	17	.16
40. - 42.	19	.17
42. - 44.	45	.41
44. - 46.	90	.83
46. - 48.	155	1.42
48. - 50.	289	2.66
50. - 52.	302	2.78
52. - 54.	151	1.39
54. - 56.	21	.19
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
<		
. - 200.	0	.00
200. - 400.	35	.32
400. - 600.	1300	11.95
600. - 800.	364	3.35
800. - 1000.	594	5.46
1000. - 1200.	900	8.27
1200. - 1400.	1323	12.16
1400. - 1600.	2246	20.64
1600. - 1800.	1466	13.47
1800. - 2000.	1049	9.64
2000. - 2200.	1031	9.48
2200. - 2400.	489	4.49
2400. - 2600.	82	.75
2600. - 2800.	1	.01
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE C-18.
1971 IH/DETROIT DIESEL 6-71, 426 CID 16 TRACTOR, GCW 54000 LM., TRUCK D-3
RUN DURATION 23.83 MIN., IDLE SPEED 750 RPM, TEST WT. 41500 LM., 1222776 RUN 6

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1275.1506	523.1885	4.7136	12320	2475.0000	160.0000	2315.0000
FF	2	24.0795	25.4324	.4583	3080	90.7985	.0115	90.7870
SPD	3	19.1407	13.3834	.1206	12320	54.8100	.0000	54.8100

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	895	24.06
2	542	17.60
3	1270	41.23
4	147	4.77
5	188	6.10
6	0	.00
7	1	.03

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	1053	34.19
4. - 8.	199	6.46
8. - 12.	135	4.38
12. - 16.	230	7.47
16. - 20.	227	7.37
20. - 24.	136	4.42
24. - 28.	105	3.41
28. - 32.	99	3.21
32. - 36.	66	2.14
36. - 40.	73	2.37
40. - 44.	53	1.72
44. - 48.	68	2.21
48. - 52.	55	1.79
52. - 56.	82	2.66
56. - 60.	69	2.24
60. - 64.	66	2.14
64. - 68.	62	2.01
68. - 72.	57	1.85
72. - 76.	71	2.31
76. - 80.	58	1.88
80. - 84.	40	1.30
84. - 88.	56	1.82
88. - 92.	20	.65
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
0. - 2.	2132	17.31
2. - 4.	205	1.66
4. - 6.	232	1.88
6. - 8.	254	2.06
8. - 10.	365	2.96
10. - 12.	390	3.17
12. - 14.	634	5.15
14. - 16.	704	5.71
16. - 18.	787	6.39
18. - 20.	515	4.18
20. - 22.	964	7.82
22. - 24.	672	5.45
24. - 26.	980	7.95
26. - 28.	1018	8.26
28. - 30.	715	5.80
30. - 32.	202	1.64
32. - 34.	208	1.69
34. - 36.	145	1.18
36. - 38.	79	.64
38. - 40.	118	.96
40. - 42.	67	.54
42. - 44.	88	.71
44. - 46.	129	1.05
46. - 48.	214	1.77
48. - 50.	173	1.40
50. - 52.	144	1.17
52. - 54.	166	1.35
54. - 56.	16	.13
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	6	.05
200. - 400.	59	.48
400. - 600.	2627	21.32
600. - 800.	499	4.05
800. - 1000.	578	4.69
1000. - 1200.	999	8.11
1200. - 1400.	1673	13.58
1400. - 1600.	2324	18.86
1600. - 1800.	1485	12.05
1800. - 2000.	1139	9.25
2000. - 2200.	634	5.15
2200. - 2400.	276	2.24
2400. - 2600.	21	.17
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-[illegible]

1971 [illegible]

RUN DURATION [illegible]

VAR	NO	MEAN	S.D.	STD. ERROR MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1123.[illegible]	[illegible]	[illegible]	12240	2475.0000	145.0000	2330.0000
FF	2	[illegible]	[illegible]	[illegible]	3060	[illegible]	[illegible]	[illegible]
SPD	3	19.0094	12.7027	.1148	12240	[illegible]	[illegible]	[illegible]

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1175	38.40
2	683	22.32
3	795	25.98
4	77	2.52
5	330	10.78
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	877	28.66
4. - 8.	196	6.41
8. - 12.	185	6.05
12. - 16.	271	8.86
16. - 20.	215	7.03
20. - 24.	204	6.67
24. - 28.	164	5.36
28. - 32.	158	5.16
32. - 36.	116	3.79
36. - 40.	77	2.52
40. - 44.	72	2.35
44. - 48.	67	2.19
48. - 52.	60	1.96
52. - 56.	55	1.80
56. - 60.	94	3.07
60. - 64.	73	2.39
64. - 68.	44	1.44
68. - 72.	44	1.44
72. - 76.	41	1.34
76. - 80.	17	.56
80. - 84.	17	.56
84. - 88.	8	.26
88. - 92.	2	.07
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	1998	16.32
2. - 4.	308	2.52
4. - 6.	337	2.75
6. - 8.	367	3.00
8. - 10.	430	3.51
10. - 12.	335	2.74
12. - 14.	331	2.70
14. - 16.	491	4.01
16. - 18.	738	6.03
18. - 20.	796	6.50
20. - 22.	494	4.04
22. - 24.	718	5.87
24. - 26.	1212	9.90
26. - 28.	1423	11.63
28. - 30.	359	2.93
30. - 32.	414	3.38
32. - 34.	248	2.03
34. - 36.	35	.29
36. - 38.	46	.38
38. - 40.	167	1.36
40. - 42.	270	2.21
42. - 44.	266	2.17
44. - 46.	307	2.51
46. - 48.	162	1.32
48. - 50.	8	.07
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	3	.02
200. - 400.	110	.90
400. - 600.	2729	22.30
600. - 800.	851	6.95
800. - 1000.	1606	13.12
1000. - 1200.	1304	10.65
1200. - 1400.	1673	13.67
1400. - 1600.	1734	14.17
1600. - 1800.	1245	10.17
1800. - 2000.	618	5.05
2000. - 2200.	281	2.30
2200. - 2400.	70	.57
2400. - 2600.	16	.13
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-20.
1971 IH/DETROIT DIESEL 6-71, 426 CID IN TRACTOR, GCW [illegible] LB., TRUCK C-3
RUN DURATION 23.26 MIN., IDLE SPEED 750 RPM, TEST WT. [illegible] LB., 12/22/76 [illegible]

VAR	NO	MEAN	STD.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1242.5273	535.5985	4.4057	11920	2515.0000	195.0000	2320.0000
FF	2	26.2155	22.0644	.4776	2980	88.9901	.0243	88.9657
SPD	3	19.5143	13.4399	.1231	11920	53.4450	.0000	53.4450

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	985	33.05
2	711	23.86
3	578	19.40
4	399	13.39
5	307	10.30
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	802	26.91
4. - 8.	366	12.28
8. - 12.	145	4.87
12. - 16.	177	5.94
16. - 20.	145	4.87
20. - 24.	133	4.46
24. - 28.	120	4.03
28. - 32.	101	3.39
32. - 36.	80	2.68
36. - 40.	64	2.15
40. - 44.	55	1.85
44. - 48.	61	2.05
48. - 52.	93	3.12
52. - 56.	76	2.55
56. - 60.	87	2.92
60. - 64.	74	2.48
64. - 68.	82	2.75
68. - 72.	51	1.71
72. - 76.	81	2.72
76. - 80.	74	2.48
80. - 84.	72	2.42
84. - 88.	40	1.34
88. - 92.	1	.03
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	2102	17.63
2. - 4.	297	2.49
4. - 6.	290	2.43
6. - 8.	369	3.10
8. - 10.	278	2.33
10. - 12.	308	2.58
12. - 14.	346	2.90
14. - 16.	537	4.51
16. - 18.	475	3.98
18. - 20.	805	6.75
20. - 22.	692	5.81
22. - 24.	520	4.36
24. - 26.	669	5.61
26. - 28.	895	7.51
28. - 30.	1101	9.24
30. - 32.	795	6.67
32. - 34.	241	2.02
34. - 36.	34	.29
36. - 38.	46	.39
38. - 40.	148	1.24
40. - 42.	115	.96
42. - 44.	302	2.53
44. - 46.	140	1.17
46. - 48.	46	.39
48. - 50.	164	1.38
50. - 52.	186	1.56
52. - 54.	19	.16
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	114	.96
400. - 600.	2768	23.22
600. - 800.	532	4.46
800. - 1000.	590	4.95
1000. - 1200.	941	7.89
1200. - 1400.	1705	14.30
1400. - 1600.	1611	13.52
1600. - 1800.	1750	14.68
1800. - 2000.	1135	9.52
2000. - 2200.	545	4.57
2200. - 2400.	198	1.66
2400. - 2600.	30	.25
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-21.
1971 DETROIT DIESEL 6-71, 400 CID, 16 TRACTOR, GCW 58000 LB., TRUCK D-3
RUN DURATION= 28.07 MIN., IDLE SPEED 750 RPM, TEST WT. 41500 LB., 12/22/70 RUN 10

VAR	NO	MEAN	STD.	STD. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1114.9707	476.8905	3.9796	14360	2540.0000	295.0000	2245.0000
FF	2	14.1457	20.8548	.3481	3590	86.2568	.1374	86.1194
SPD	3	16.1835	12.4634	.1040	14360	47.0400	.0000	47.0400

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1143	31.84
2	747	20.81
3	1283	35.74
4	25	.70
5	316	8.80
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	1153	32.12
4. - 8.	480	13.37
8. - 12.	207	5.77
12. - 16.	346	9.64
16. - 20.	255	7.10
20. - 24.	140	3.90
24. - 28.	132	3.68
28. - 32.	99	2.76
32. - 36.	84	2.34
36. - 40.	60	1.67
40. - 44.	75	2.09
44. - 48.	58	1.62
48. - 52.	51	1.42
52. - 56.	79	2.20
56. - 60.	111	3.09
60. - 64.	57	1.59
64. - 68.	70	1.95
68. - 72.	50	1.39
72. - 76.	36	1.00
76. - 80.	21	.58
80. - 84.	20	.56
84. - 88.	6	.17
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME VS AT LEVEL <	COUNT	PERCENT
. - 2.	3477	24.21
2. - 4.	308	2.14
4. - 6.	318	2.21
6. - 8.	361	2.51
8. - 10.	505	3.52
10. - 12.	487	3.39
12. - 14.	572	3.98
14. - 16.	589	4.10
16. - 18.	751	5.23
18. - 20.	988	6.74
20. - 22.	1221	8.50
22. - 24.	1051	7.32
24. - 26.	939	6.54
26. - 28.	764	5.32
28. - 30.	257	1.79
30. - 32.	261	1.82
32. - 34.	228	1.59
34. - 36.	161	1.12
36. - 38.	159	1.11
38. - 40.	329	2.29
40. - 42.	272	1.89
42. - 44.	204	1.42
44. - 46.	151	1.05
46. - 48.	27	.19
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	46	.32
400. - 600.	4309	30.01
600. - 800.	439	3.06
800. - 1000.	714	4.97
1000. - 1200.	1275	8.88
1200. - 1400.	2998	20.88
1400. - 1600.	2515	17.51
1600. - 1800.	1160	8.08
1800. - 2000.	544	3.79
2000. - 2200.	226	1.57
2200. - 2400.	117	.81
2400. - 2600.	17	.12
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-22.

1971 IH/DETROIT DIESEL 6-71, 426 CID IN TRACTOR, GCW 58000 LB., TRUCK C-3
RUN DURATION 22.31 MIN., IDLE SPEED 750 RPM, TEST WT. 41500 LB., 1/22/74 RUN 11

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1325.6685	509.0309	4.7592	11440	2530.0000	270.0000	2260.0000
FF	2	25.4681	24.7298	.4624	2860	88.4350	.0021	88.4329
SPD	3	20.3317	12.3596	.1156	11440	52.5000	.0000	52.5000

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	577	20.17
2	476	16.64
3	1443	50.45
4	26	.91
5	33	1.15
6	304	10.63
7	1	.03

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	718	25.10
4. - 8.	331	11.57
8. - 12.	199	6.96
12. - 16.	159	5.56
16. - 20.	129	4.51
20. - 24.	145	5.07
24. - 28.	146	5.10
28. - 32.	81	2.83
32. - 36.	70	2.45
36. - 40.	82	2.87
40. - 44.	107	3.74
44. - 48.	77	2.69
48. - 52.	87	3.04
52. - 56.	61	2.13
56. - 60.	111	3.88
60. - 64.	86	3.01
64. - 68.	54	1.89
68. - 72.	32	1.12
72. - 76.	39	1.36
76. - 80.	34	1.19
80. - 84.	56	1.96
84. - 88.	50	1.75
88. - 92.	6	.21
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	1503	13.14
2. - 4.	224	1.96
4. - 6.	229	2.00
6. - 8.	232	2.03
8. - 10.	287	2.51
10. - 12.	384	3.36
12. - 14.	444	3.88
14. - 16.	498	4.35
16. - 18.	662	5.79
18. - 20.	777	6.79
20. - 22.	769	6.72
22. - 24.	664	5.80
24. - 26.	920	8.04
26. - 28.	951	8.31
28. - 30.	904	7.90
30. - 32.	381	3.33
32. - 34.	226	1.98
34. - 36.	203	1.77
36. - 38.	143	1.25
38. - 40.	242	2.12
40. - 42.	186	1.63
42. - 44.	232	2.03
44. - 46.	166	1.45
46. - 48.	42	.37
48. - 50.	81	.71
50. - 52.	85	.74
52. - 54.	5	.04
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	18	.16
400. - 600.	1994	17.43
600. - 800.	300	2.62
800. - 1000.	695	6.08
1000. - 1200.	983	8.59
1200. - 1400.	1882	16.45
1400. - 1600.	1779	15.55
1600. - 1800.	1507	13.17
1800. - 2000.	1483	12.96
2000. - 2200.	470	4.11
2200. - 2400.	278	2.43
2400. - 2600.	51	.45
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-4

1970 WHITE 58,000-LB GCW TRACTOR
WITH CUMMINS NH-250 ENGINE

TABLE C-23.

1970 WHITE/COMMINS 250, 855 CID 16, 56000 LB GCW TRACTOR, TK. D-4 2/12/74 RUN 1
RUN DURATION 23.84 MIN., IDLE SPEED RPM, TEST WEIGHT 41500 LB.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1472.9990	610.6215	5.5283	12200	2620.0000	165.0000	2435.[illegible]
FF	2	28.9233	29.1564	1.0912	719	111.7158	.4839	111.2319
SPD	3	18.9398	13.3519	.1209	12200	51.3072	.0000	51.[illegible]

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1194	39.15
2	310	10.16
3	1149	37.67
4	96	3.15
5	301	9.87
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
0 - 4	143	20.03
4 - 8	103	14.43
8 - 12	43	6.02
12 - 16	38	5.32
16 - 20	44	6.16
20 - 24	36	5.04
24 - 28	32	4.48
28 - 32	29	4.06
32 - 36	24	3.36
36 - 40	19	2.66
40 - 44	24	3.36
44 - 48	19	2.66
48 - 52	12	1.68
52 - 56	17	2.38
56 - 60	12	1.68
60 - 64	13	1.82
64 - 68	5	.70
68 - 72	11	1.54
72 - 76	5	.70
76 - 80	13	1.82
80 - 84	10	1.40
84 - 88	13	1.82
88 - 92	13	1.82
92 - 96	15	2.10
96 - 100	6	.84
100 - 104	9	1.26
104 - 108	3	.42
108 - 112	3	.42
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
. - 2.	2056	16.65
2. - 4.	402	3.30
4. - 6.	414	3.39
6. - 8.	508	4.16
8. - 10.	306	2.51
10. - 12.	374	3.07
12. - 14.	438	3.59
14. - 16.	415	3.40
16. - 18.	324	2.66
18. - 20.	610	5.00
20. - 22.	541	4.43
22. - 24.	880	7.21
24. - 26.	1002	8.21
26. - 28.	1248	10.23
28. - 30.	1029	8.43
30. - 32.	484	3.97
32. - 34.	42	.34
34. - 36.	18	.15
36. - 38.	29	.24
38. - 40.	92	.75
40. - 42.	50	.41
42. - 44.	124	1.02
44. - 46.	193	1.58
46. - 48.	302	2.48
48. - 50.	271	2.22
50. - 52.	48	.39
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	2	.02
200. - 400.	27	.22
400. - 600.	558	4.57
600. - 800.	2611	21.40
800. - 1000.	601	4.93
1000. - 1200.	617	5.06
1200. - 1400.	501	4.11
1400. - 1600.	843	6.91
1600. - 1800.	1678	13.75
1800. - 2000.	1716	14.07
2000. - 2200.	1655	13.57
2200. - 2400.	1264	10.36
2400. - 2600.	126	1.03
2600. - 2800.	1	.01
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE C-24.

1970 WHITE/CUMMINS 250 MSS ... SPEED LH GCW TRACTOR, TK. D-4 2/12/74 RUN 2
RUN DURATION 23.19 MIN., IDLE SPEED   RPM, TEST WEIGHT 41500 LB.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1478.5222	616.6649	5.6667	11920	2515.0000	235.0000	2280.0000
FF	2	28.8192	30.6893	1.1633	696	106.6226	0.0000	106.6226
SPD	3	19.3654	14.0512	.1287	11920	51.6096	.0000	51.6096

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1000	33.56
2	525	17.62
3	746	25.03
4	423	14.19
5	286	9.60
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
0 - 4	241	34.63
4 - 8	32	4.60
8 - 12	23	3.30
12 - 16	22	3.16
16 - 20	40	5.75
20 - 24	39	5.60
24 - 28	32	4.60
28 - 32	31	4.45
32 - 36	18	2.59
36 - 40	19	2.73
40 - 44	12	1.72
44 - 48	17	2.44
48 - 52	13	1.87
52 - 56	13	1.87
56 - 60	17	2.44
60 - 64	12	1.72
64 - 68	11	1.58
68 - 72	10	1.44
72 - 76	12	1.72
76 - 80	7	1.01
80 - 84	11	1.58
84 - 88	10	1.44
88 - 92	7	1.01
92 - 96	14	2.01
96 - 100	18	2.59
100 - 104	12	1.72
104 - 108	3	.43
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2397	20.11
2. - 4.	413	3.46
4. - 6.	324	2.72
6. - 8.	374	3.14
8. - 10.	289	2.42
10. - 12.	237	1.99
12. - 14.	264	2.21
14. - 16.	286	2.40
16. - 18.	367	3.08
18. - 20.	630	5.29
20. - 22.	363	3.05
22. - 24.	543	4.56
24. - 26.	1162	9.75
26. - 28.	926	7.77
28. - 30.	736	6.17
30. - 32.	793	6.65
32. - 34.	576	4.83
34. - 36.	81	.68
36. - 38.	39	.33
38. - 40.	54	.45
40. - 42.	83	.70
42. - 44.	130	1.09
44. - 46.	425	3.57
46. - 48.	265	2.22
48. - 50.	120	1.01
50. - 52.	43	.36
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	31	.26
400. - 600.	372	3.12
600. - 800.	3089	25.91
800. - 1000.	289	2.42
1000. - 1200.	442	3.71
1200. - 1400.	503	4.22
1400. - 1600.	718	6.02
1600. - 1800.	1276	10.70
1800. - 2000.	2209	18.53
2000. - 2200.	1935	16.23
2200. - 2400.	878	7.37
2400. - 2600.	178	1.49
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-25.

1970 WHITE/CUMMINS 250 855 CID 16 5000 LB GCW TRACTOR, TK. U-4 2/12/74 RUN 3
RUN DURATION 21.33 MIN., IDLE SPEED RPM, TEST WEIGHT 41500 LB.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1503.6704	562.4473	5.3725	10960	2505.0000	140.0000	2365.0000
FF	2	32.6596	31.4414	1.2467	63[illegible]	108.0350	0.0000	108.0350
SPD	3	21.1068	13.3659	.1279	10960	53.2224	.0000	53.2224

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	861	31.42
2	345	12.59
3	558	20.36
4	669	24.42
5	306	11.17
6	0	.00
7	1	.04

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
0 - 4	176	27.67
4 - 8	47	7.39
8 - 12	27	4.25
12 - 16	23	3.62
16 - 20	17	2.67
20 - 24	25	3.93
24 - 28	37	5.82
28 - 32	26	4.09
32 - 36	22	3.46
36 - 40	15	2.36
40 - 44	15	2.36
44 - 48	15	2.36
48 - 52	21	3.30
52 - 56	10	1.57
56 - 60	16	2.52
60 - 64	13	2.04
64 - 68	14	2.20
68 - 72	16	2.52
72 - 76	14	2.20
76 - 80	13	2.04
80 - 84	19	2.99
84 - 88	7	1.10
88 - 92	6	.94
92 - 96	15	2.36
96 - 100	7	1.10
100 - 104	9	1.42
104 - 108	9	1.42
108 - 112	2	.31
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	1525	13.91
2. - 4.	289	2.64
4. - 6.	387	3.53
6. - 8.	208	1.90
8. - 10.	369	3.37
10. - 12.	312	2.85
12. - 14.	242	2.21
14. - 16.	270	2.46
16. - 18.	520	4.74
18. - 20.	671	6.12
20. - 22.	502	4.58
22. - 24.	467	4.26
24. - 26.	628	5.73
26. - 28.	532	4.85
28. - 30.	1131	10.32
30. - 32.	1134	10.35
32. - 34.	540	4.93
34. - 36.	53	.48
36. - 38.	15	.14
38. - 40.	138	1.26
40. - 42.	210	1.92
42. - 44.	294	2.68
44. - 46.	197	1.80
46. - 48.	71	.65
48. - 50.	146	1.33
50. - 52.	89	.81
52. - 54.	20	.18
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	19	.17
400. - 600.	317	2.89
600. - 800.	2060	18.80
800. - 1000.	407	3.71
1000. - 1200.	541	4.94
1200. - 1400.	694	6.33
1400. - 1600.	767	7.00
1600. - 1800.	1902	17.35
1800. - 2000.	2181	19.90
2000. - 2200.	1131	10.32
2200. - 2400.	803	7.33
2400. - 2600.	137	1.25
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-26.

1970 WHITE/CUMMINS 250 855 CID I6 56000 LB GCW TRACTOR, TK. 0-4 2/12/74 RUN 4

RUN DURATION 22.49 MIN., IDLE SPEED RPM, TEST WEIGHT 41500 LB.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1459.0105	567.5601	5.3066	11520	2505.0000	445.0000	2060.0000
FF	8	26.3298	28.3273	1.0927	672	95.1002	0.0000	95.1002
SPD	3	20.0811	13.9178	.1297	11520	90.4176	.0000	90.4176

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	894	31.04
2	225	7.81
3	1013	35.17
4	436	15.14
5	311	10.80
6	0	.00
7	1	.03

PERCENT OF TIME FF AT LEVEL ≤	COUNT	PERCENT
0 - 4	224	33.33
4 - 8	89	4.38
8 - 12	45	6.70
12 - 16	38	5.66
16 - 20	38	5.65
20 - 24	29	4.32
24 - 28	28	4.17
28 - 32	22	3.27
32 - 36	17	2.53
36 - 40	26	3.88
40 - 44	15	2.23
44 - 48	19	2.83
48 - 52	12	1.79
52 - 56	16	2.38
56 - 60	9	1.34
60 - 64	15	2.23
64 - 68	16	2.38
68 - 72	15	2.23
72 - 76	6	.89
76 - 80	5	.74
80 - 84	15	2.23
84 - 88	15	2.23
88 - 92	17	2.53
92 - 96	11	1.64
96 - 100	0	0.00
100 - 104	0	0.00
104 - 108	0	0.00
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME WS AT LEVEL ≤	COUNT	PERCENT
0. - 2.	2106	18.28
2. - 4.	195	1.69
4. - 6.	222	1.93
6. - 8.	316	2.74
8. - 10.	255	2.21
10. - 12.	233	2.02
12. - 14.	352	3.06
14. - 16.	403	3.50
16. - 18.	430	3.73
18. - 20.	462	4.01
20. - 22.	680	5.90
22. - 24.	905	7.86
24. - 26.	1125	9.77
26. - 28.	983	8.53
28. - 30.	958	8.32
30. - 32.	593	5.15
32. - 34.	196	1.70
34. - 36.	26	.23
36. - 38.	20	.17
38. - 40.	14	.12
40. - 42.	31	.27
42. - 44.	62	.54
44. - 46.	92	.80
46. - 48.	125	1.09
48. - 50.	324	2.81
50. - 52.	331	2.87
52. - 54.	79	.69
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL ≤	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	168	1.46
600. - 800.	2563	22.25
800. - 1000.	607	5.27
1000. - 1200.	604	5.24
1200. - 1400.	618	5.36
1400. - 1600.	1270	11.02
1600. - 1800.	2056	17.85
1800. - 2000.	1606	13.94
2000. - 2200.	793	6.88
2200. - 2400.	965	8.38
2400. - 2600.	270	2.34
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-2[illegible].

1970 [illegible]ITE/CUMMINS 250 855 CID 16 58000 LB GCW TRACTOR, TK. D-4 2/13/74 RUN 7
RUN DURATION 23.78 MIN., IDLE SPEED RPM, TEST WEIGHT 41500 LB.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1462.8008	569.8947	5.1938	12040	2555.0000	390.0000	2165.0000
FF	2	26.8716	28.5774	1.0717	711	96.8163	0.0000	96.8163
SPD	3	19.1273	13.8683	.1264	12040	51.6096	.0000	51.6096

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	953	31.66
2	352	11.69
3	1047	34.78
4	405	13.46
5	253	8.41
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
0 - 4	242	34.04
4 - 8	40	5.63
8 - 12	46	6.47
12 - 16	38	5.34
16 - 20	31	4.36
20 - 24	31	4.36
24 - 28	25	3.52
28 - 32	25	3.52
32 - 36	20	2.81
36 - 40	14	1.97
40 - 44	13	1.83
44 - 48	15	2.11
48 - 52	18	2.53
52 - 56	11	1.55
56 - 60	19	2.67
60 - 64	10	1.41
64 - 68	12	1.69
68 - 72	8	1.13
72 - 76	16	2.25
76 - 80	16	2.25
80 - 84	18	2.53
84 - 88	22	3.09
88 - 92	13	1.83
92 - 96	7	.98
96 - 100	1	.14
100 - 104	0	0.00
104 - 108	0	0.00
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2656	22.06
2. - 4.	155	1.29
4. - 6.	226	1.88
6. - 8.	263	2.18
8. - 10.	211	1.75
10. - 12.	279	2.32
12. - 14.	268	2.23
14. - 16.	482	4.00
16. - 18.	587	4.88
18. - 20.	694	5.76
20. - 22.	612	5.08
22. - 24.	945	7.85
24. - 26.	778	6.46
26. - 28.	922	7.66
28. - 30.	718	5.96
30. - 32.	388	3.22
32. - 34.	308	2.56
34. - 36.	294	2.44
36. - 38.	150	1.25
38. - 40.	102	.85
40. - 42.	48	.40
42. - 44.	162	1.35
44. - 46.	324	2.69
46. - 48.	219	1.82
48. - 50.	226	1.88
50. - 52.	23	.19
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	118	.98
600. - 800.	3011	25.01
800. - 1000.	416	3.46
1000. - 1200.	540	4.49
1200. - 1400.	719	5.97
1400. - 1600.	1077	8.95
1600. - 1800.	1963	16.30
1800. - 2000.	1711	14.21
2000. - 2200.	1538	12.77
2200. - 2400.	827	6.87
2400. - 2600.	119	.99
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-28.
1970 WHITE/CUMMINS 250, 855 CID 16, 58000 LB GCW TRACTOR, TR. D-4
RUN DURATION 22.93 MIN., IDLE SPEED RPM, TEST WEIGHT 41500 LB.2/13/74 RUN 8

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1456.3918	556.4165	5.1485	11680	2555.0000	455.0000	2100.0000
FF	2	26.3995	27.0946	1.0318	687	95.5326	.4451	95.0873
SPD	3	21.1992	14.9765	.1386	11680	56.5920	.0000	56.5920

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	786	26.92
2	414	14.18
3	1123	38.46
4	340	11.64
5	254	8.70
6	0	.00
7	1	.03

PERCENT OF TIME FF AT LEVEL	COUNT	PERCENT	PERCENT OF TIME WS AT LEVEL	COUNT	PERCENT	PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
<			<			<		
0 - 4	221	32.17	. - 2.	2226	19.06	. - 200.	0	.00
4 - 8	40	5.82	2. - 4.	190	1.63	200. - 400.	0	.00
8 - 12	36	5.24	4. - 6.	203	1.74	400. - 600.	236	2.02
12 - 16	33	4.80	6. - 8.	235	2.01	600. - 800.	2589	22.17
16 - 20	39	5.68	8. - 10.	283	2.42	800. - 1000.	368	3.15
20 - 24	42	6.11	10. - 12.	242	2.07	1000. - 1200.	481	4.12
24 - 28	32	4.66	12. - 14.	366	3.13	1200. - 1400.	862	7.38
28 - 32	22	3.20	14. - 16.	420	3.60	1400. - 1600.	1525	13.06
32 - 36	21	3.06	16. - 18.	597	5.11	1600. - 1800.	2000	17.12
36 - 40	17	2.47	18. - 20.	445	3.81	1800. - 2000.	1561	13.36
40 - 44	16	2.33	20. - 22.	448	3.84	2000. - 2200.	1089	9.32
44 - 48	11	1.60	22. - 24.	638	5.46	2200. - 2400.	804	6.88
48 - 52	21	3.06	24. - 26.	560	4.79	2400. - 2600.	165	1.41
52 - 56	21	3.06	26. - 28.	703	6.02	2600. - 2800.	0	.00
56 - 60	13	1.89	28. - 30.	753	6.45	2800. - 3000.	0	.00
60 - 64	13	1.89	30. - 32.	881	7.54	3000. - 3200.	0	.00
64 - 68	7	1.02	32. - 34.	675	5.78	3200. - 3400.	0	.00
68 - 72	9	1.31	34. - 36.	321	2.75	3400. - 3600.	0	.00
72 - 76	13	1.89	36. - 38.	200	1.71	3600. - 3800.	0	.00
76 - 80	15	2.18	38. - 40.	101	.86	3800. - 4000.	0	.00
80 - 84	12	1.75	40. - 42.	103	.88	4000. - 4200.	0	.00
84 - 88	11	1.60	42. - 44.	74	.63	4200. - 4400.	0	.00
88 - 92	9	1.31	44. - 46.	121	1.04	4400. - 4600.	0	.00
92 - 96	13	1.89	46. - 48.	193	1.65	4600. - 4800.	0	.00
96 - 100	0	0.00	48. - 50.	130	1.11	4800. - 5000.	0	.00
100 - 104	0	0.00	50. - 52.	178	1.52			
104 - 108	0	0.00	52. - 54.	259	2.22			
108 - 112	0	0.00	54. - 56.	130	1.11			
112 - 116	0	0.00	56. - 58.	5	.04			
116 - 120	0	0.00	58. - 60.	0	.00			
120 - 124	0	0.00						
124 - 128	0	.00						
128 - 132	0	0.00						

TABLE C-29.
1970 WHITE/CUMMINS 250, 855 CID, [illegible] 58000 LB GCW TRACTOR, IN. [illegible]
RUN DURATION 26.19 MIN., IDLE SPEED [illegible] RPM, TEST WEIGHT 41500 LB. 2/13/76 RUN [illegible]

VAR NO		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1423.3804	606.4838	5.3734	12760	2570.0000	310.0000	2260.0000
FF	2	27.4609	28.2859	1.0308	753	100.2532	.8519	99.4013
SPD	3	14.4144	15.4236	.1383	12760	57.5640	.0000	57.5640

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	959	30.06
2	425	13.32
3	1063	33.32
4	466	14.61
5	277	8.68
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
0 - 4	274	36.39
4 - 8	39	5.18
8 - 12	23	3.05
12 - 16	33	4.38
16 - 20	33	4.38
20 - 24	28	3.72
24 - 28	28	3.72
28 - 32	37	4.91
32 - 36	22	2.92
36 - 40	16	2.12
40 - 44	17	2.26
44 - 48	9	1.20
48 - 52	24	3.19
52 - 56	14	1.86
56 - 60	13	1.73
60 - 64	21	2.79
64 - 68	17	2.26
68 - 72	20	2.66
72 - 76	16	2.12
76 - 80	15	1.99
80 - 84	17	2.26
84 - 88	13	1.73
88 - 92	19	2.52
92 - 96	4	.53
96 - 100	0	0.00
100 - 104	1	.13
104 - 108	0	0.00
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	3082	24.15
2. - 4.	312	2.45
4. - 6.	230	1.80
6. - 8.	376	2.95
8. - 10.	302	2.37
10. - 12.	284	2.23
12. - 14.	406	3.18
14. - 16.	373	2.92
16. - 18.	501	3.93
18. - 20.	486	3.81
20. - 22.	445	3.49
22. - 24.	527	4.13
24. - 26.	715	5.60
26. - 28.	898	7.04
28. - 30.	793	6.21
30. - 32.	673	5.27
32. - 34.	557	4.37
34. - 36.	386	3.03
36. - 38.	80	.63
38. - 40.	165	1.29
40. - 42.	69	.54
42. - 44.	30	.24
44. - 46.	32	.25
46. - 48.	118	.92
48. - 50.	178	1.39
50. - 52.	176	1.38
52. - 54.	284	2.23
54. - 56.	253	1.98
56. - 58.	29	.23
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	5	.04
400. - 600.	401	3.14
600. - 800.	3558	27.88
800. - 1000.	411	3.22
1000. - 1200.	509	3.99
1200. - 1400.	542	4.25
1400. - 1600.	890	6.97
1600. - 1800.	1823	14.29
1800. - 2000.	2168	16.99
2000. - 2200.	1317	10.32
2200. - 2400.	917	7.19
2400. - 2600.	219	1.72
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-5

1973 IHC 58,000-LB GCW TRACTOR
WITH CATERPILLAR 1160 ENGINE

TABLE C-30.

1978 IH/CAT 1[illegible], 636 CID V8 TRACTOR, [illegible] SHROUD [illegible], TRUCK [illegible]
RUN DURATION [illegible] MIN., IDLE SPEED [illegible] RPM, TEST WT. [illegible] LB., [illegible] RUN 1

VAR NO.		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1233.3047	523.4566	4.6857	12480	2865.0000	400.0000	2465.0000
FF	2	21.8875	[illegible]	.4089	3120	83.3044	[illegible]	[illegible]
SPD	3	18.4057	14.2181	.1273	12480	58.2628	.0000	58.2628

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	939	30.10
2	945	30.29
3	1102	35.32
4	131	4.20
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1237	39.65
4. - 8.	169	5.42
8. - 12.	155	4.97
12. - 16.	126	4.04
16. - 20.	134	4.29
20. - 24.	137	4.39
24. - 28.	131	4.20
28. - 32.	95	3.04
32. - 36.	71	2.28
36. - 40.	88	2.82
40. - 44.	88	2.82
44. - 48.	102	3.27
48. - 52.	102	3.27
52. - 56.	75	2.40
56. - 60.	63	2.02
60. - 64.	114	3.65
64. - 68.	147	4.71
68. - 72.	56	1.79
72. - 76.	18	.58
76. - 80.	8	.26
80. - 84.	4	.13
84. - 88.	0	[illegible]
88. - 92.	0	[illegible]
92. - 96.	0	[illegible]
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	2652	21.25
2. - 4.	278	2.23
4. - 6.	236	1.89
6. - 8.	283	2.27
8. - 10.	268	2.15
10. - 12.	329	2.64
12. - 14.	425	3.41
14. - 16.	595	4.77
16. - 18.	682	5.46
18. - 20.	930	7.45
20. - 22.	877	7.03
22. - 24.	973	7.80
24. - 26.	688	5.51
26. - 28.	830	6.65
28. - 30.	697	5.58
30. - 32.	323	2.59
32. - 34.	289	2.32
34. - 36.	53	.42
36. - 38.	22	.18
38. - 40.	21	.17
40. - 42.	40	.32
42. - 44.	56	.45
44. - 46.	54	.43
46. - 48.	90	.72
48. - 50.	120	.96
50. - 52.	174	1.39
52. - 54.	289	2.32
54. - 56.	153	1.23
56. - 58.	46	.37
58. - 60.	3	.02

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	836	6.70
600. - 800.	2815	22.56
800. - 1000.	1077	8.63
1000. - 1200.	1595	12.78
1200. - 1400.	1675	13.42
1400. - 1600.	1293	10.36
1600. - 1800.	955	7.65
1800. - 2000.	879	7.04
2000. - 2200.	933	7.48
2200. - 2400.	272	2.18
2400. - 2600.	99	.79
2600. - 2800.	45	.36
2800. - 3000.	6	.05
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE C-31.

1973 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5
RUN DURATION 20.08 MIN., IDLE SPEED 600 RPM, TEST AT 37610 LM., 2722/74, RUN 2

VAR	NO	MEAN	STD.	STD. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1231.5916	485.9142	4.3849	12280	2800.0000	.0000	2800.0000
FF	2	19.8109	20.4524	.3691	3070	81.5259	.0353	81.4907
SPD	3	18.7168	13.3626	.1206	12280	50.1298	.0000	50.1298

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	857	27.92
2	891	29.02
3	1322	43.06
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	1203	39.19
4. - 8.	145	4.72
8. - 12.	155	5.05
12. - 16.	154	5.02
16. - 20.	207	6.74
20. - 24.	187	6.09
24. - 28.	127	4.14
28. - 32.	119	3.88
32. - 36.	80	2.61
36. - 40.	71	2.31
40. - 44.	77	2.51
44. - 48.	125	4.07
48. - 52.	80	2.61
52. - 56.	88	2.87
56. - 60.	74	2.41
60. - 64.	68	2.21
64. - 68.	63	2.05
68. - 72.	29	.94
72. - 76.	11	.36
76. - 80.	4	.13
80. - 84.	3	.10
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
0. - 2.	2455	19.99
2. - 4.	237	1.93
4. - 6.	269	2.19
6. - 8.	347	2.83
8. - 10.	395	3.22
10. - 12.	305	2.48
12. - 14.	290	2.36
14. - 16.	560	4.56
16. - 18.	580	4.72
18. - 20.	633	5.15
20. - 22.	789	6.43
22. - 24.	1019	8.30
24. - 26.	803	6.54
26. - 28.	648	5.28
28. - 30.	831	6.77
30. - 32.	446	3.63
32. - 34.	238	1.94
34. - 36.	157	1.28
36. - 38.	94	.77
38. - 40.	108	.88
40. - 42.	257	2.09
42. - 44.	226	1.84
44. - 46.	371	3.02
46. - 48.	205	1.67
48. - 50.	16	.13
50. - 52.	1	.01
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	17	.14
200. - 400.	3	.02
400. - 600.	1183	9.63
600. - 800.	1983	16.15
800. - 1000.	936	7.62
1000. - 1200.	1654	13.47
1200. - 1400.	2167	17.65
1400. - 1600.	1290	10.50
1600. - 1800.	1118	9.10
1800. - 2000.	1109	9.03
2000. - 2200.	586	4.77
2200. - 2400.	166	1.35
2400. - 2600.	52	.42
2600. - 2800.	15	.12
2800. - 3000.	1	.01
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-32.

1973 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5
RUN DURATION 21.67 MIN., IDLE SPEED 600 RPM, TEST WT. 37610 LM., 2/20/74, RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1272.1377	522.3779	4.9448	11160	2830.0000	355.0000	2475.0000
FF	2	24.0445	23.4888	.4542	2790	81.2140	.0476	81.1664
SPD	3	20.7525	14.1036	.1335	11160	59.7800	.0000	59.7800

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	703	25.20
2	1000	35.84
3	893	32.01
4	194	6.95
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	1061	35.88
4. - 8.	169	6.02
8. - 12.	142	5.09
12. - 16.	126	4.44
16. - 20.	107	3.84
20. - 24.	109	3.91
24. - 28.	99	3.55
28. - 32.	84	3.01
32. - 36.	72	2.58
36. - 40.	95	3.41
40. - 44.	102	3.66
44. - 48.	107	3.84
48. - 52.	65	2.33
52. - 56.	93	3.33
56. - 60.	27	.97
60. - 64.	86	3.08
64. - 68.	166	5.95
68. - 72.	95	3.41
72. - 76.	31	1.11
76. - 80.	15	.54
80. - 84.	2	.07
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	1626	14.57
2. - 4.	205	1.84
4. - 6.	226	2.03
6. - 8.	254	2.28
8. - 10.	247	2.21
10. - 12.	285	2.55
12. - 14.	385	3.45
14. - 16.	683	6.12
16. - 18.	708	6.34
18. - 20.	711	6.37
20. - 22.	858	7.69
22. - 24.	585	5.24
24. - 26.	576	5.16
26. - 28.	761	6.82
28. - 30.	938	8.41
30. - 32.	567	5.08
32. - 34.	239	2.14
34. - 36.	147	1.32
36. - 38.	142	1.27
38. - 40.	23	.21
40. - 42.	18	.16
42. - 44.	55	.49
44. - 46.	55	.49
46. - 48.	90	.81
48. - 50.	112	1.00
50. - 52.	103	.92
52. - 54.	227	2.03
54. - 56.	207	1.85
56. - 58.	98	.88
58. - 60.	29	.26

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	6	.05
400. - 600.	962	8.44
600. - 800.	1732	15.52
800. - 1000.	990	8.87
1000. - 1200.	1665	14.92
1200. - 1400.	1776	15.91
1400. - 1600.	1175	10.53
1600. - 1800.	641	5.74
1800. - 2000.	874	7.88
2000. - 2200.	839	7.52
2200. - 2400.	371	3.32
2400. - 2600.	89	.80
2600. - 2800.	51	.46
2800. - 3000.	4	.04
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-33.

1973 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5
RUN DURATION 21.55 MIN., IDLE SPEED 660 RPM, TEST WT. 37610 LB., 2/20/74, RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1208.8892	442.6484	4.2224	11000	2645.0000	455.0000	2190.0000
FF	2	24.5960	20.7093	.3949	2750	73.9796	.0252	73.9544
SPD	3	21.0885	12.8753	.1228	11000	54.5706	.0000	54.5706

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	703	25.56
2	986	35.85
3	1061	38.58
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	697	25.35
4. - 8.	271	9.85
8. - 12.	110	4.00
12. - 16.	131	4.76
16. - 20.	157	5.71
20. - 24.	137	4.98
24. - 28.	119	4.33
28. - 32.	144	5.24
32. - 36.	134	4.87
36. - 40.	134	4.87
40. - 44.	78	2.84
44. - 48.	147	5.35
48. - 52.	167	6.07
52. - 56.	70	2.55
56. - 60.	62	2.25
60. - 64.	80	2.91
64. - 68.	58	2.11
68. - 72.	35	1.27
72. - 76.	19	.69
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	1638	14.89
2. - 4.	116	1.05
4. - 6.	229	2.08
6. - 8.	205	1.86
8. - 10.	199	1.81
10. - 12.	150	1.36
12. - 14.	312	2.84
14. - 16.	482	4.38
16. - 18.	571	5.19
18. - 20.	598	5.44
20. - 22.	659	5.99
22. - 24.	734	6.67
24. - 26.	968	8.80
26. - 28.	1162	10.56
28. - 30.	921	8.37
30. - 32.	532	4.84
32. - 34.	302	2.75
34. - 36.	58	.53
36. - 38.	41	.37
38. - 40.	209	1.90
40. - 42.	142	1.29
42. - 44.	74	.67
44. - 46.	220	2.00
46. - 48.	255	2.32
48. - 50.	142	1.29
50. - 52.	70	.64
52. - 54.	9	.08
54. - 56.	2	.02
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	1088	9.89
600. - 800.	1415	12.86
800. - 1000.	959	8.72
1000. - 1200.	1950	17.73
1200. - 1400.	2363	21.48
1400. - 1600.	920	8.36
1600. - 1800.	975	8.86
1800. - 2000.	704	6.40
2000. - 2200.	600	5.45
2200. - 2400.	25	.23
2400. - 2600.	0	.00
2600. - 2800.	1	.01
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-34.

1973 IH/CAT 1160, 636 CID V8 [illegible]

RUN DURATION 23.83 MIN., IDLE [illegible] RPM, EST WT. 37610 LB., [illegible]

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1148.8882	432.9077	3.9130	12240	2510.0000	425.0000	[illegible]
FF	2	21.2514	19.7753	.3575	3060	71.8835	.0636	[illegible]
SPD	3	18.9201	13.2869	.1201	12240	54.7414	.0000	54.7414

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	838	27.39
2	836	27.32
3	1121	36.63
4	265	8.66
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1080	35.29
4. - 8.	186	6.08
8. - 12.	163	5.33
12. - 16.	125	4.08
16. - 20.	.	4.84
20. - 24.	136	4.44
24. - 28.	143	4.67
28. - 32.	127	4.15
32. - 36.	111	3.63
36. - 40.	106	3.46
40. - 44.	134	4.38
44. - 48.	231	7.55
48. - 52.	98	3.20
52. - 56.	86	2.81
56. - 60.	77	2.52
60. - 64.	71	2.3[illegible]
64. - 68.	33	1.08
68. - 72.	5	.16
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	.	.00
108. - 112.		.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2203	18.00
2. - 4.	250	2.04
4. - 6.	338	2.76
6. - 8.	402	3.28
8. - 10.	317	2.59
10. - 12.	432	3.53
12. - 14.	417	3.41
14. - 16.	525	4.29
16. - 18.	519	4.24
18. - 20.	444	3.63
20. - 22.	780	6.37
22. - 24.	1167	9.53
24. - 26.	855	6.99
26. - 28.	671	5.48
28. - 30.	902	7.37
30. - 32.	627	5.12
32. - 34.	219	1.79
34. - 36.	26	.21
36. - 38.	33	.27
38. - 40.	62	.51
40. - 42.	125	1.02
42. - 44.	189	1.54
44. - 46.	313	2.56
46. - 48.	219	1.79
48. - 50.	127	1.04
50. - 52.	65	.53
52. - 54.	12	.10
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	1057	8.64
600. - 800.	2256	18.43
800. - 1000.	1421	11.61
1000. - 1200.	2043	16.69
1200. - 1400.	2440	19.93
1400. - 1600.	904	7.39
1600. - 1800.	842	6.88
1800. - 2000.	810	6.62
2000. - 2200.	417	3.41
2200. - 2400.	47	.38
2400. - 2600.	3	.02
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-35.

1973 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5
RUN DURATION 21.40 MIN., IDLE SPEED 600 RPM, TEST WT. 37610 LB., 2/21/74, RUN 7

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1387.8582	577.6204	5.5275	10920	2875.0000	325.0000	2550.0000
FF	2	27.2477	25.2627	.4839	2730	88.7367	.0541	88.6826
SPD	3	21.2013	14.2000	.1359	10920	50.6984	.0000	50.6984

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	853	31.25
2	964	35.31
3	654	23.96
4	259	9.49
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	862	31.58
4. - 8.	157	5.75
8. - 12.	122	4.47
12. - 16.	130	4.76
16. - 20.	112	4.10
20. - 24.	126	4.62
24. - 28.	108	3.96
28. - 32.	90	3.30
32. - 36.	81	2.97
36. - 40.	75	2.75
40. - 44.	56	2.05
44. - 48.	52	1.90
48. - 52.	94	3.44
52. - 56.	90	3.30
56. - 60.	104	3.81
60. - 64.	123	4.51
64. - 68.	139	5.09
68. - 72.	102	3.74
72. - 76.	46	1.68
76. - 80.	25	.92
80. - 84.	28	1.03
84. - 88.	6	.22
88. - 92.	2	.07
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT LEVEL <	COUNT	PERCENT
. - 2.	2081	19.06
2. - 4.	218	2.00
4. - 6.	254	2.33
6. - 8.	262	2.40
8. - 10.	193	1.77
10. - 12.	140	1.28
12. - 14.	199	1.82
14. - 16.	269	2.46
16. - 18.	330	3.02
18. - 20.	440	4.03
20. - 22.	632	5.79
22. - 24.	647	5.92
24. - 26.	459	4.20
26. - 28.	699	6.40
28. - 30.	894	8.19
30. - 32.	722	6.61
32. - 34.	723	6.62
34. - 36.	258	2.36
36. - 38.	188	1.72
38. - 40.	239	2.19
40. - 42.	187	1.71
42. - 44.	274	2.51
44. - 46.	307	2.81
46. - 48.	239	2.19
48. - 50.	57	.52
50. - 52.	9	.08
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	19	.17
400. - 600.	477	4.37
600. - 800.	2427	22.23
800. - 1000.	423	3.87
1000. - 1200.	534	4.89
1200. - 1400.	1411	12.92
1400. - 1600.	1469	13.45
1600. - 1800.	1151	10.54
1800. - 2000.	1150	10.53
2000. - 2200.	1035	9.48
2200. - 2400.	411	3.76
2400. - 2600.	232	2.12
2600. - 2800.	152	1.39
2800. - 3000.	29	.27
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-36.
1973 IH/CAT 1160, 636 CID V8 INACTUM, GCW 56000 LB., TRUCK D-5
RUN DURATION 26.90 MIN., IDLE SPEED 600 RPM, TEST WT. 37610 LB., 2/21/74, RUN 8

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1238.2437	549.2177	4.8697	12720	2890.0000	60.0000	2830.0000
FF	2	22.8015	23.1840	.4111	3180	82.1698	.0565	82.1133
SPD	3	18.1341	13.1689	.1168	12720	46.0802	.0000	46.0802

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1211	38.08
2	928	29.18
3	872	27.42
4	169	5.31
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME LEVEL <	FF AT COUNT	PERCENT
. - 4.	1223	38.46
4. - 8.	196	6.16
8. - 12.	152	4.78
12. - 16.	135	4.25
16. - 20.	130	4.09
20. - 24.	117	3.68
24. - 28.	105	3.30
28. - 32.	84	2.64
32. - 36.	81	2.55
36. - 40.	84	2.64
40. - 44.	94	2.96
44. - 48.	140	4.40
48. - 52.	71	2.23
52. - 56.	106	3.33
56. - 60.	156	4.91
60. - 64.	117	3.68
64. - 68.	79	2.48
68. - 72.	57	1.79
72. - 76.	30	.94
76. - 80.	21	.66
80. - 84.	2	.06
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME LEVEL <	MS AT COUNT	PERCENT
. - 2.	2770	21.78
2. - 4.	303	2.38
4. - 6.	282	2.22
6. - 8.	329	2.59
8. - 10.	278	2.19
10. - 12.	301	2.37
12. - 14.	385	3.03
14. - 16.	530	4.17
16. - 18.	605	4.76
18. - 20.	857	6.74
20. - 22.	619	4.87
22. - 24.	690	5.42
24. - 26.	643	5.06
26. - 28.	969	7.62
28. - 30.	1208	9.50
30. - 32.	333	2.62
32. - 34.	267	2.10
34. - 36.	213	1.67
36. - 38.	119	.94
38. - 40.	265	2.08
40. - 42.	214	1.68
42. - 44.	225	1.77
44. - 46.	189	1.49
46. - 48.	124	.97
48. - 50.	2	.02
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME LEVEL <	RPM AT COUNT	PERCENT
. - 200.	2	.02
200. - 400.	32	.25
400. - 600.	917	7.21
600. - 800.	3068	24.12
800. - 1000.	843	6.63
1000. - 1200.	1429	11.23
1200. - 1400.	2040	16.04
1400. - 1600.	1015	7.98
1600. - 1800.	1057	8.31
1800. - 2000.	956	7.52
2000. - 2200.	666	5.24
2200. - 2400.	333	2.62
2400. - 2600.	204	1.60
2600. - 2800.	140	1.10
2800. - 3000.	20	.16
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-37.

1973 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5
RUN DURATION 23.45 MIN., IDLE SPEED 600 RPM, TEST WT. 37610 LB., 2/21/74, RUN 9

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1275.5840	549.2729	5.0225	11960	2860.0000	120.0000	2740.0000
FF	2	24.9846	24.3729	.4457	2990	87.0810	.0369	87.0441
SPD	3	19.2822	13.8240	.1264	11960	50.3860	.0000	50.3860

GEAR	COUNT	PERCENT OF TIME GEAR SHIFT POSITION AT PERCENT
1	970	32.44
2	946	31.64
3	909	30.40
4	164	5.48
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	1147	38.36
4. - 8.	154	5.15
8. - 12.	98	3.28
12. - 16.	136	4.55
16. - 20.	104	3.48
20. - 24.	84	2.81
24. - 28.	69	2.31
28. - 32.	72	2.41
32. - 36.	71	2.37
36. - 40.	94	3.14
40. - 44.	98	3.28
44. - 48.	105	3.51
48. - 52.	151	5.05
52. - 56.	99	3.31
56. - 60.	129	4.31
60. - 64.	141	4.72
64. - 68.	130	4.35
68. - 72.	51	1.71
72. - 76.	29	.97
76. - 80.	19	.64
80. - 84.	5	.17
84. - 88.	4	.13
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2589	21.65
2. - 4.	216	1.81
4. - 6.	213	1.78
6. - 8.	221	1.85
8. - 10.	307	2.57
10. - 12.	323	2.70
12. - 14.	322	2.69
14. - 16.	459	3.84
16. - 18.	519	4.34
18. - 20.	528	4.41
20. - 22.	504	4.21
22. - 24.	583	4.87
24. - 26.	1064	8.90
26. - 28.	930	7.78
28. - 30.	589	4.92
30. - 32.	523	4.37
32. - 34.	543	4.54
34. - 36.	234	1.96
36. - 38.	108	.90
38. - 40.	81	.68
40. - 42.	274	2.29
42. - 44.	318	2.66
44. - 46.	261	2.18
46. - 48.	230	1.92
48. - 50.	20	.17
50. - 52.	1	.01
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	15	.13
400. - 600.	934	7.81
600. - 800.	2783	23.27
800. - 1000.	559	4.67
1000. - 1200.	1275	10.66
1200. - 1400.	1386	11.59
1400. - 1600.	1253	10.48
1600. - 1800.	795	6.65
1800. - 2000.	1755	14.67
2000. - 2200.	788	6.59
2200. - 2400.	213	1.78
2400. - 2600.	138	1.15
2600. - 2800.	62	.52
2800. - 3000.	3	.03
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-6

1973 MACK 72,000-LB GCW TRACTOR
WITH MACK ENDT 676B ENGINE

TABLE C-38.
1973 MACK/MACK 676B 672 CID I6 TRACTOR, GCW 72000 LB., TRUCK D-6
RUN DURATION 23.56 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/01/74 RUN 2

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1227.8490	442.5993	16.7048	702	2300.0000	550.0000	1750.0000
FF	2	27.5812	31.3162	1.1769	708	104.3631	0.0000	104.3631
SPD	3	14.2629	14.6465	.5528	702	55.5100	.4270	55.0830

PERCENT OF TIME FF AT

LEVEL			COUNT	PERCENT
	<			
0	-	4	271	38.28
4	-	8	39	5.51
8	-	12	33	4.66
12	-	16	30	4.24
16	-	20	31	4.38
20	-	24	31	4.38
24	-	28	20	2.82
28	-	32	16	2.26
32	-	36	22	3.11
36	-	40	16	2.26
40	-	44	17	2.40
44	-	48	10	1.41
48	-	52	14	1.98
52	-	56	6	.85
56	-	60	14	1.98
60	-	64	12	1.69
64	-	68	5	.71
68	-	72	9	1.27
72	-	76	11	1.55
76	-	80	15	2.12
80	-	84	20	2.82
84	-	88	14	1.98
88	-	92	17	2.40
92	-	96	17	2.40
96	-	100	10	1.41
100	-	104	6	.85
104	-	108	2	.28
108	-	112	0	0.00
112	-	116	0	0.00
116	-	120	0	0.00
120	-	124	0	0.00
124	-	128	0	0.00
128	-	132	0	0.00

PERCENT OF TIME HS AT

LEVEL			COUNT	PERCENT
	<			
0	-	2	145	20.66
2	-	4	15	2.14
4	-	6	19	2.71
6	-	8	13	1.85
8	-	10	9	1.28
10	-	12	26	3.70
12	-	14	19	2.71
14	-	16	46	6.55
16	-	18	32	4.56
18	-	20	27	3.85
20	-	22	51	7.26
22	-	24	63	8.97
24	-	26	38	5.41
26	-	28	29	4.13
28	-	30	48	6.84
30	-	32	28	3.99
32	-	34	6	.85
34	-	36	12	1.71
36	-	38	9	1.28
38	-	40	5	.71
40	-	42	5	.71
42	-	44	4	.57
44	-	46	3	.43
46	-	48	2	.28
48	-	50	6	.85
50	-	52	4	.57
52	-	54	19	2.71
54	-	56	19	2.71
56	-	58	0	0.00
58	-	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL			COUNT	PERCENT
	<			
0	-	200	0	0.00
200	-	400	0	0.00
400	-	600	2	.28
600	-	800	196	27.92
800	-	1000	31	4.42
1000	-	1200	80	11.40
1200	-	1400	117	16.67
1400	-	1600	108	15.38
1600	-	1800	98	13.96
1800	-	2000	37	5.27
2000	-	2200	28	3.99
2200	-	2400	5	.71
2400	-	2600	0	0.00
2600	-	2800	0	0.00
2800	-	3000	0	0.00
3000	-	3200	0	0.00
3200	-	3400	0	0.00
3400	-	3600	0	0.00
3600	-	3800	0	0.00
3800	-	4000	0	0.00
4000	-	4200	0	0.00
4200	-	4400	0	0.00
4400	-	4600	0	0.00
4600	-	4800	0	0.00
4800	-	5000	0	0.00

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TABLE C-34.
1973 MACK/MACK 676B 672 CID I6 TRACTOR, GCW 72000 LB., TRUCK D-6
RUN DURATION 22.96 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/01/74 RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1244.6296	446.0113	17.1670	675	2250.0000	500.0000	1750.0000
FF	2	28.6941	31.3469	1.2065	675	100.9721	0.0000	100.9721
SPD	3	20.1247	14.5813	.5612	675	55.9370	.4270	55.5100

PERCENT OF TIME FF AT

LEVEL		COUNT	PERCENT
0	- 4	243	36.00
4	- 8	41	6.07
8	- 12	33	4.89
12	- 16	25	3.70
16	- 20	37	5.48
20	- 24	21	3.11
24	- 28	19	2.81
28	- 32	26	3.85
32	- 36	10	1.48
36	- 40	14	2.07
40	- 44	16	2.37
44	- 48	19	2.81
48	- 52	12	1.78
52	- 56	11	1.63
56	- 60	9	1.33
60	- 64	15	2.22
64	- 68	15	2.22
68	- 72	7	1.04
72	- 76	5	.74
76	- 80	11	1.63
80	- 84	16	2.37
84	- 88	16	2.37
88	- 92	17	2.52
92	- 96	20	2.96
96	- 100	12	1.78
100	- 104	5	.74
104	- 108	0	0.00
108	- 112	0	0.00
112	- 116	0	0.00
116	- 120	0	0.00
120	- 124	0	0.00
124	- 128	0	0.00
128	- 132	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0	- 2	121	17.93
2	- 4	10	1.48
4	- 6	27	4.00
6	- 8	10	1.48
8	- 10	15	2.22
10	- 12	24	3.56
12	- 14	22	3.26
14	- 16	42	6.22
16	- 18	32	4.74
18	- 20	22	3.26
20	- 22	35	5.19
22	- 24	46	6.81
24	- 26	49	7.26
26	- 28	54	8.00
28	- 30	31	4.59
30	- 32	13	1.93
32	- 34	36	5.33
34	- 36	13	1.93
36	- 38	6	.89
38	- 40	3	.44
40	- 42	6	.89
42	- 44	5	.74
44	- 46	2	.30
46	- 48	3	.44
48	- 50	2	.30
50	- 52	10	1.48
52	- 54	22	3.26
54	- 56	14	2.07
56	- 58	0	0.00
58	- 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0	- 200	0	0.00
200	- 400	0	0.00
400	- 600	3	.44
600	- 800	172	25.48
800	- 1000	40	5.93
1000	- 1200	61	9.04
1200	- 1400	122	18.07
1400	- 1600	90	13.33
1600	- 1800	121	17.93
1800	- 2000	35	5.19
2000	- 2200	23	3.41
2200	- 2400	8	1.19
2400	- 2600	0	0.00
2600	- 2800	0	0.00
2800	- 3000	0	0.00
3000	- 3200	0	0.00
3200	- 3400	0	0.00
3400	- 3600	0	0.00
3600	- 3800	0	0.00
3800	- 4000	0	0.00
4000	- 4200	0	0.00
4200	- 4400	0	0.00
4400	- 4600	0	0.00
4600	- 4800	0	0.00
4800	- 5000	0	0.00

TABLE C-40.
1973 MACK/MACK [illegible] 72000 LB., [illegible]
RUN DURATION [illegible] MIN., [illegible] TEST WT. [illegible]

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	[illegible]
RPM	1	[illegible]	[illegible]	[illegible]	12080	[illegible]	[illegible]	[illegible]
FF	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SPD	3	19.1615	13.0653	.1189	12080	58.7552	.0000	58.7552

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	874	[illegible]
2	536	17.75
3	1277	42.28
4	169	5.60
5	164	5.43
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1230	40.73
4. - 8.	144	4.77
8. - 12.	127	4.21
12. - 16.	148	4.90
16. - 20.	142	4.70
20. - 24.	120	3.97
24. - 28.	101	3.34
28. - 32.	95	3.15
32. - 36.	92	3.05
36. - 40.	67	2.22
40. - 44.	56	1.85
44. - 48.	57	1.89
48. - 52.	77	[illegible]
52. - 56.	[illegible]	[illegible]
56. - 60.	32	1.06
60. - 64.	43	1.42
64. - 68.	43	1.42
68. - 72.	5	1.15
72. - 76.	36	1.19
76. - 80.	44	1.45
80. - 84.	46	1.52
84. - 88.	32	1.06
88. - 92.	39	1.29
92. - 96.	79	2.62
96. - 100.	65	2.15
100. - 104.	10	.33
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2102	17.40
2. - 4.	287	2.38
4. - 6.	220	1.82
6. - 8.	352	2.91
8. - 10.	325	2.69
10. - 12.	493	4.08
12. - 14.	396	3.28
14. - 16.	614	5.08
16. - 18.	406	3.36
18. - 20.	703	5.82
20. - 22.	649	5.37
22. - 24.	871	7.21
24. - 26.	844	6.99
26. - 28.	923	7.64
28. - 30.	564	4.67
30. - 32.	424	[illegible]
32. - 34.	440	[illegible]
34. - 36.	296	2.45
36. - 38.	229	1.90
38. - 40.	243	2.01
40. - 42.	165	1.37
42. - 44.	130	1.08
44. - 46.	139	1.15
46. - 48.	107	.89
48. - 50.	50	.41
50. - 52.	45	.37
52. - 54.	32	.26
54. - 56.	22	.18
56. - 58.	8	.07
58. - 60.	1	.01

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	10	.08
400. - 600.	118	.98
600. - 800.	2869	23.75
800. - 1000.	557	4.61
1000. - 1200.	1383	11.45
1200. - 1400.	1909	15.80
1400. - 1600.	2143	17.74
1600. - 1800.	1209	[illegible]
1800. - 2000.	934	[illegible]
2000. - 2200.	484	[illegible]
2200. - 2400.	260	2.15
2400. - 2600.	204	[illegible]
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-41.
1973 MACK/MACK 676P, 672 CID IN TRACTOR, GCW 72000 LBS, TRUCK D-8
RUN DURATION 26.43 MIN., IDLE SPEED 650 RPM, TEST WT. 44600 LBS., 3/4/74, RUN 9

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1264.0281	448.6256	4.0158	12480	2545.0000	365.0000	2180.0000
FF	2	25.4260	30.1945	.5406	3120	104.9050	.0150	104.8900
SPD	3	18.5352	13.8605	.1241	12480	56.9618	.0000	56.9618

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	959	30.74
2	370	11.86
3	1409	45.16
4	375	12.02
5	0	.00
6	1	.03
7	1	.03

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1197	38.37
4. - 8.	205	6.57
8. - 12.	152	4.87
12. - 16.	162	5.19
16. - 20.	138	4.42
20. - 24.	114	3.65
24. - 28.	111	3.56
28. - 32.	95	3.04
32. - 36.	99	3.17
36. - 40.	69	2.21
40. - 44.	63	2.02
44. - 48.	63	2.02
48. - 52.	58	1.86
52. - 56.	41	1.31
56. - 60.	52	1.67
60. - 64.	50	1.60
64. - 68.	36	1.15
68. - 72.	28	.90
72. - 76.	27	.87
76. - 80.	28	.90
80. - 84.	28	.90
84. - 88.	39	1.25
88. - 92.	54	1.73
92. - 96.	85	2.72
96. - 100.	101	3.24
100. - 104.	23	.74
104. - 108.	2	.06
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2519	20.18
2. - 4.	241	1.93
4. - 6.	314	2.52
6. - 8.	314	2.52
8. - 10.	389	3.12
10. - 12.	350	2.80
12. - 14.	475	3.81
14. - 16.	561	4.50
16. - 18.	540	4.33
18. - 20.	706	5.66
20. - 22.	739	5.92
22. - 24.	851	6.82
24. - 26.	1254	10.05
26. - 28.	869	6.96
28. - 30.	476	3.81
30. - 32.	314	2.52
32. - 34.	314	2.52
34. - 36.	121	.97
36. - 38.	38	.30
38. - 40.	77	.62
40. - 42.	70	.56
42. - 44.	100	.80
44. - 46.	115	.92
46. - 48.	94	.75
48. - 50.	174	1.39
50. - 52.	301	2.41
52. - 54.	148	1.19
54. - 56.	14	.11
56. - 58.	2	.02
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	3	.02
400. - 600.	261	2.09
600. - 800.	3029	24.27
800. - 1000.	662	5.30
1000. - 1200.	1126	9.02
1200. - 1400.	2132	17.08
1400. - 1600.	2205	17.67
1600. - 1800.	1745	13.98
1800. - 2000.	766	6.14
2000. - 2200.	271	2.17
2200. - 2400.	187	1.50
2400. - 2600.	93	.75
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-42.

1973 MACK/MACK 676 CID IN TRACTOR, GCW 72000 LBS., TRUCK [illegible]
RUN DURATION 27.15 MIN., [illegible] RPM, TEST WT. 64960 LBS., 3/4/74, RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1244.3364	504.3513	4.2748	13920	2565.0000	345.0000	2220.0000
FP	2	28.4484	32.[illegible]	.5572	3480	112.1400	.0271	112.1129
SPD	3	16.5245	14.4079	.1221	13920	63.7930	.0000	63.7930

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1388	39.89
2	428	12.30
3	1309	37.61
4	129	3.71
5	225	6.47
6	0	.00
7	1	.03

PERCENT OF TIME FP AT LEVEL <	COUNT	PERCENT
. - 4.	1338	38.45
4. - 8.	429	12.33
8. - 12.	169	4.86
12. - 16.	133	3.82
16. - 20.	112	3.22
20. - 24.	88	2.53
24. - 28.	79	2.27
28. - 32.	75	2.16
32. - 36.	79	2.27
36. - 40.	57	1.64
40. - 44.	65	1.87
44. - 48.	70	2.01
48. - 52.	68	1.95
52. - 56.	62	1.78
56. - 60.	34	.98
60. - 64.	33	.95
64. - 68.	30	.86
68. - 72.	46	1.32
72. - 76.	34	.98
76. - 80.	32	.92
80. - 84.	42	1.21
84. - 88.	43	1.24
88. - 92.	46	1.32
92. - 96.	54	1.55
96. - 100.	101	2.90
100. - 104.	96	2.76
104. - 108.	50	1.44
108. - 112.	14	.40
112. - 116.	1	.03
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT LEVEL <	COUNT	PERCENT
. - 2.	3735	26.83
2. - 4.	359	2.58
4. - 6.	395	2.84
6. - 8.	486	3.49
8. - 10.	445	3.20
10. - 12.	462	3.32
12. - 14.	532	3.82
14. - 16.	701	5.04
16. - 18.	610	4.38
18. - 20.	482	3.46
20. - 22.	537	3.86
22. - 24.	641	4.60
24. - 26.	1022	7.34
26. - 28.	696	5.00
28. - 30.	487	3.50
30. - 32.	562	4.04
32. - 34.	349	2.51
34. - 36.	219	1.57
36. - 38.	193	1.39
38. - 40.	165	1.19
40. - 42.	123	.88
42. - 44.	63	.45
44. - 46.	44	.32
46. - 48.	76	.55
48. - 50.	69	.50
50. - 52.	109	.78
52. - 54.	124	.89
54. - 56.	106	.76
56. - 58.	76	.55
58. - 60.	38	.27

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2	.01
400. - 600.	224	1.61
600. - 800.	4360	31.32
800. - 1000.	976	7.01
1000. - 1200.	1076	7.73
1200. - 1400.	1783	12.81
1400. - 1600.	1660	11.93
1600. - 1800.	1624	11.67
1800. - 2000.	1102	7.92
2000. - 2200.	573	4.12
2200. - 2400.	403	2.90
2400. - 2600.	137	.98
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-43.
1973 MACK/MACK 676HP, 672 CID IN TRACTOR, GCW 72000 LBS., TRUCK [illegible]
RUN DURATION 21.66 MIN., IDLE SPEED 650 RPM, TEST AT [illegible] 3/8/74, [illegible]

VAR NO.		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1225.4258	429.0087	4.0322	11320	2520.0801	312.1200	2207.9600
FF	2	44.3139	60.1532	1.1307	2830	342.6945	.3568	342.3377
SPD	3	21.4449	14.0680	.1322	11320	60.8166	.0000	60.8166

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	618	21.84
2	278	9.82
3	1657	58.55
4	277	9.79
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	201	7.10
4. - 8.	122	4.31
8. - 12.	52	1.84
12. - 16.	40	1.41
16. - 20.	46	1.63
20. - 24.	34	1.20
24. - 28.	47	1.66
28. - 32.	46	1.63
32. - 36.	39	1.38
36. - 40.	32	1.13
40. - 44.	35	1.24
44. - 48.	26	.92
48. - 52.	22	.78
52. - 56.	19	.67
56. - 60.	26	.92
60. - 64.	20	.71
64. - 68.	13	.46
68. - 72.	22	.78
72. - 76.	24	.85
76. - 80.	25	.88
80. - 84.	40	1.41
84. - 88.	37	1.31
88. - 92.	58	2.05
92. - 96.	70	2.47
96. - 100.	70	2.47
100. - 104.	85	3.00
104. - 108.	100	3.53
108. - 112.	124	4.38
112. - 116.	132	4.66
116. - 120.	123	4.35
120. - 124.	126	4.45
124. - 128.	93	3.29
128. - 132.	85	3.00

PERCENT OF TIME GS AT

LEVEL <	COUNT	PERCENT
. - 2.	1580	13.96
2. - 4.	243	2.15
4. - 6.	187	1.65
6. - 8.	283	2.50
8. - 10.	210	1.86
10. - 12.	228	2.01
12. - 14.	416	3.67
14. - 16.	665	5.87
16. - 18.	528	4.66
18. - 20.	580	5.12
20. - 22.	790	6.98
22. - 24.	769	6.79
24. - 26.	1056	9.33
26. - 28.	756	6.68
28. - 30.	684	6.04
30. - 32.	452	3.99
32. - 34.	331	2.92
34. - 36.	199	1.76
36. - 38.	196	1.73
38. - 40.	85	.75
40. - 42.	28	.25
42. - 44.	29	.26
44. - 46.	59	.52
46. - 48.	160	1.41
48. - 50.	251	2.22
50. - 52.	194	1.71
52. - 54.	163	1.44
54. - 56.	120	1.06
56. - 58.	71	.63
58. - 60.	24	.21

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	7	.06
400. - 600.	456	4.03
600. - 800.	2187	19.32
800. - 1000.	902	7.97
1000. - 1200.	1647	14.55
1200. - 1400.	1962	17.33
1400. - 1600.	2024	17.88
1600. - 1800.	1209	10.68
1800. - 2000.	432	3.82
2000. - 2200.	277	2.45
2200. - 2400.	189	1.67
2400. - 2600.	23	.20
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

[illegible]

[illegible]

[illegible]

VAR NO.	MEAN	S.D.	[illegible]	NUMBER	MINIMUM	MAXIMUM	
RPM 1	[illegible]	[illegible]	[illegible]	11000	[illegible]	[illegible]	
FF 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SPD 3	[illegible]	16.[illegible]	[illegible]	11000	[illegible]	[illegible]	[illegible]

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	[illegible]	[illegible]
2	285	10.36
3	1367	49.66
4	170	6.18
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME [illegible] AT

LEVEL	COUNT	PERCENT
. - 4.	46	[illegible]
4. - 8.	36	[illegible]
8. - 12.	21	[illegible]
12. - 16.	[illegible]	[illegible]
16. - 20.	21	[illegible]
20. - 24.	[illegible]	[illegible]
24. - 28.	[illegible]	[illegible]
28. - 32.	[illegible]	[illegible]
32. - 36.	[illegible]	[illegible]
36. - 40.	[illegible]	[illegible]
40. - 44.	[illegible]	[illegible]
44. - 48.	17	[illegible]
48. - 52.	[illegible]	[illegible]
52. - 56.	[illegible]	[illegible]
56. - 60.	[illegible]	[illegible]
60. - 64.	[illegible]	[illegible]
64. - 68.	15	[illegible]
68. - 72.	[illegible]	[illegible]
72. - 76.	19	[illegible]
76. - 80.	41	[illegible]
80. - 84.	[illegible]	[illegible]
84. - 88.	[illegible]	[illegible]
88. - 92.	[illegible]	[illegible]
92. - 96.	[illegible]	[illegible]
96. - 100.	136	[illegible]
100. - 104.	147	[illegible]
104. - 108.	151	[illegible]
108. - 112.	[illegible]	[illegible]
112. - 116.	174	[illegible]
116. - 120.	[illegible]	[illegible]
120. - 124.	[illegible]	[illegible]
124. - 128.	[illegible]	[illegible]
128. - 132.	102	[illegible]

PERCENT OF TIME [illegible] AT

LEVEL	COUNT	PERCENT
. - 2.	1844	16.76
2. - 4.	567	[illegible]
4. - 6.	[illegible]	[illegible]
6. - 8.	[illegible]	[illegible]
8. - 10.	[illegible]	[illegible]
10. - 12.	[illegible]	[illegible]
12. - 14.	[illegible]	[illegible]
14. - 16.	[illegible]	[illegible]
16. - 18.	[illegible]	[illegible]
18. - 20.	[illegible]	4.13
20. - 22.	[illegible]	5.48
22. - 24.	[illegible]	[illegible]
24. - 26.	[illegible]	[illegible]
26. - 28.	[illegible]	[illegible]
28. - 30.	[illegible]	[illegible]
30. - 32.	[illegible]	[illegible]
32. - 34.	[illegible]	[illegible]
34. - 36.	[illegible]	[illegible]
36. - 38.	104	[illegible]
38. - 40.	[illegible]	[illegible]
40. - 42.	[illegible]	.12
42. - 44.	11	[illegible]
44. - 46.	11	[illegible]
46. - 48.	[illegible]	[illegible]
48. - 50.	31	[illegible]
50. - 52.	[illegible]	[illegible]
52. - 54.	[illegible]	[illegible]
54. - 56.	111	[illegible]
56. - 58.	116	[illegible]
58. - 60.	[illegible]	[illegible]

PERCENT OF TIME [illegible] AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	13	.12
400. - 600.	[illegible]	[illegible]
600. - 800.	[illegible]	[illegible]
800. - 1000.	[illegible]	[illegible]
1000. - 1200.	[illegible]	[illegible]
1200. - 1400.	[illegible]	[illegible]
1400. - 1600.	[illegible]	[illegible]
1600. - 1800.	[illegible]	[illegible]
1800. - 2000.	[illegible]	[illegible]
2000. - 2200.	[illegible]	[illegible]
2200. - 2400.	[illegible]	[illegible]
2400. - 2600.	[illegible]	[illegible]
2600. - 2800.	[illegible]	[illegible]
2800. - 3000.	0	[illegible]
3000. - 3200.	[illegible]	[illegible]
3200. - 3400.	0	[illegible]
3400. - 3600.	[illegible]	[illegible]
3600. - 3800.	[illegible]	[illegible]
3800. - 4000.	[illegible]	[illegible]
4000. - 4200.	[illegible]	[illegible]
4200. - 4400.	[illegible]	[illegible]
4400. - 4600.	[illegible]	[illegible]
4600. - 4800.	[illegible]	[illegible]
4800. - 5000.	[illegible]	[illegible]

OPERATIONAL DATA
S.A.R.R. TRUCK D-7

1973 MACK 72,000-LB GCW TRACTOR
WITH DETROIT DIESEL 8V-71 ENGINE

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TABLE C-35.

1973 MACK/DETROIT DIESEL 8V-71 [illegible] TRACTOR, [illegible] 72000 LB., TABLE D-7
RUN FORMAT, [illegible] MIN., 1000 [illegible] TEST #1, [illegible] 3/27/74 [illegible]

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1625.[illegible]	624.[illegible]	5.5256	12920	2590.0000	190.[illegible]	2400.0000
FF	2	[illegible]	38.[illegible]	.6605	3230	115.0074	.0161	115.[illegible]
SPD	3	17.[illegible]	15.[illegible]	.1364	12920	61.3172	.0000	61.3172

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1102	34.12
2	214	6.63
3	405	12.54
4	1145	35.45
5	23	.71
6	247	7.65
7	1	.03

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1324	40.99
4. - 8.	153	4.74
8. - 12.	90	2.79
12. - 16.	85	2.64
16. - 20.	79	2.45
20. - 24.	74	2.29
24. - 28.	75	2.32
28. - 32.	77	2.38
32. - 36.	70	2.17
36. - 40.	69	2.14
40. - 44.	78	2.41
44. - 48.	54	1.67
48. - 52.	53	1.64
52. - 56.	53	1.64
56. - 60.	32	.99
60. - 64.	50	1.55
64. - 68.	38	1.18
68. - 72.	39	1.21
72. - 76.	47	1.46
76. - 80.	47	1.46
80. - 84.	47	1.46
84. - 88.	36	1.11
88. - 92.	57	1.76
92. - 96.	54	1.67
96. - 100.	72	2.23
100. - 104.	112	3.47
104. - 108.	119	3.68
108. - 112.	130	4.02
112. - 116.	15	.46
116. - 120.	1	.03
120. - 124.	1	.03
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	3432	26.56
2. - 4.	272	2.11
4. - 6.	304	2.35
6. - 8.	369	2.86
8. - 10.	653	5.05
10. - 12.	286	2.21
12. - 14.	348	2.69
14. - 16.	400	3.10
16. - 18.	480	3.72
18. - 20.	720	5.57
20. - 22.	385	2.98
22. - 24.	319	2.47
24. - 26.	474	3.67
26. - 28.	876	6.78
28. - 30.	901	6.97
30. - 32.	628	4.86
32. - 34.	508	3.93
34. - 36.	461	3.57
36. - 38.	91	.70
38. - 40.	17	.13
40. - 42.	24	.19
42. - 44.	54	.42
44. - 46.	99	.77
46. - 48.	90	.70
48. - 50.	80	.62
50. - 52.	72	.56
52. - 54.	125	.97
54. - 56.	235	1.82
56. - 58.	168	1.30
58. - 60.	42	.33

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	92	.71
400. - 600.	3976	30.77
600. - 800.	313	2.42
800. - 1000.	550	4.26
1000. - 1200.	1012	7.83
1200. - 1400.	718	5.56
1400. - 1600.	1143	8.85
1600. - 1800.	1853	14.34
1800. - 2000.	1841	14.25
2000. - 2200.	1405	10.87
2200. - 2400.	11	.09
2400. - 2600.	5	.04
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-46.

1973 MACK/DETROIT DIESEL 8V-71, 566 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7
RUN DURATION 22.21 MIN., IDLE SPEED 600 RPM, TEST WT. 50580 LB., 3/6/74 RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1343.4285	614.9659	5.7098	11600	2195.0000	215.0000	1980.0000
FF	2	36.8575	37.5877	.6980	2900	115.1068	.0225	115.0843
SPD	3	20.0370	15.4782	.1437	11600	61.0610	.0000	61.0610

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	844	29.10
2	223	7.69
3	749	25.83
4	812	28.00
5	22	.76
6	248	8.55
7	2	.07

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
. - 4.	834	28.76
4. - 8.	295	10.17
8. - 12.	134	4.62
12. - 16.	94	3.24
16. - 20.	81	2.79
20. - 24.	62	2.14
24. - 28.	69	2.38
28. - 32.	60	2.07
32. - 36.	64	2.21
36. - 40.	47	1.62
40. - 44.	86	2.97
44. - 48.	71	2.45
48. - 52.	63	2.17
52. - 56.	54	1.86
56. - 60.	68	2.34
60. - 64.	52	1.79
64. - 68.	52	1.79
68. - 72.	49	1.69
72. - 76.	59	2.03
76. - 80.	40	1.38
80. - 84.	54	1.86
84. - 88.	46	1.59
88. - 92.	54	1.86
92. - 96.	38	1.31
96. - 100.	55	1.90
100. - 104.	107	3.69
104. - 108.	96	3.31
108. - 112.	95	3.28
112. - 116.	21	.72
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
. - 2.	2432	20.97
2. - 4.	311	2.68
4. - 6.	260	2.24
6. - 8.	209	1.80
8. - 10.	467	4.03
10. - 12.	231	1.99
12. - 14.	268	2.31
14. - 16.	376	3.24
16. - 18.	602	5.19
18. - 20.	662	5.71
20. - 22.	411	3.54
22. - 24.	518	4.47
24. - 26.	628	5.41
26. - 28.	594	5.12
28. - 30.	593	5.11
30. - 32.	606	5.22
32. - 34.	778	6.71
34. - 36.	549	4.73
36. - 38.	91	.78
38. - 40.	16	.14
40. - 42.	21	.18
42. - 44.	26	.22
44. - 46.	69	.59
46. - 48.	69	.59
48. - 50.	78	.67
50. - 52.	108	.93
52. - 54.	156	1.34
54. - 56.	221	1.91
56. - 58.	187	1.61
58. - 60.	52	.45

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	356	3.07
400. - 600.	2537	21.87
600. - 800.	196	1.69
800. - 1000.	326	2.81
1000. - 1200.	665	5.73
1200. - 1400.	1060	9.14
1400. - 1600.	1334	11.50
1600. - 1800.	1168	10.07
1800. - 2000.	2261	19.49
2000. - 2200.	1697	14.63
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-47.
1973 MACK/DETROIT DIESEL HV-71, 56K GVW VR TRACTOR, GCW 72000 LB., TRUCK D-7
RUN DURATION 22.13 MIN., IDLE SPEED 600 RPM, TEST WT. 50560 LB., 326774 RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1323.4065	560.7782	5.2430	11440	2315.0000	290.0000	2025.0000
FF	2	34.4377	38.2827	.6784	2860	115.1386	.0422	115.0965
SPD	3	20.2616	14.2280	.1330	11440	58.4990	.0000	58.4990

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	678	23.71
2	275	9.62
3	459	16.05
4	1151	40.24
5	28	.98
6	265	9.27
7	1	.03

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	836	29.23
4. - 8.	241	8.43
8. - 12.	82	2.87
12. - 16.	107	3.74
16. - 20.	141	4.93
20. - 24.	140	4.90
24. - 28.	95	3.32
28. - 32.	86	3.01
32. - 36.	102	3.57
36. - 40.	77	2.69
40. - 44.	67	2.34
44. - 48.	50	1.75
48. - 52.	56	1.96
52. - 56.	46	1.61
56. - 60.	54	1.89
60. - 64.	40	1.40
64. - 68.	27	.94
68. - 72.	33	1.15
72. - 76.	36	1.26
76. - 80.	40	1.40
80. - 84.	39	1.36
84. - 88.	37	1.29
88. - 92.	38	1.33
92. - 96.	40	1.40
96. - 100.	49	1.71
100. - 104.	89	3.11
104. - 108.	114	3.99
108. - 112.	79	2.76
112. - 116.	19	.66
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	1791	15.66
2. - 4.	327	2.86
4. - 6.	193	1.69
6. - 8.	395	3.45
8. - 10.	336	2.94
10. - 12.	346	3.02
12. - 14.	446	3.90
14. - 16.	560	4.90
16. - 18.	666	5.82
18. - 20.	636	5.56
20. - 22.	283	2.47
22. - 24.	721	6.30
24. - 26.	697	6.09
26. - 28.	997	8.72
28. - 30.	817	7.14
30. - 32.	380	3.32
32. - 34.	382	3.34
34. - 36.	332	2.90
36. - 38.	67	.59
38. - 40.	27	.24
40. - 42.	24	.21
42. - 44.	42	.37
44. - 46.	92	.80
46. - 48.	116	1.01
48. - 50.	213	1.86
50. - 52.	202	1.77
52. - 54.	232	2.03
54. - 56.	88	.77
56. - 58.	31	.27
58. - 60.	1	.01

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	172	1.50
400. - 600.	2287	19.99
600. - 800.	285	2.49
800. - 1000.	501	4.38
1000. - 1200.	602	5.26
1200. - 1400.	1133	9.90
1400. - 1600.	1824	15.94
1600. - 1800.	2041	17.84
1800. - 2000.	1717	15.01
2000. - 2200.	875	7.65
2200. - 2400.	3	.03
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-48.
1973 MACK/DETROIT DIESEL 8V-71, 565 CID V8 TRACTOR, GCW 72000 LB., TRUCK U-7
RUN DURATION 22.73 MIN., IDLE SPEED 600 RPM, TEST WT. 50580 LB., 3/6/74, RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1313.0537	572.7902	5.2730	11800	2320.0000	195.0000	2125.0000
FF	2	33.6955	36.7905	.6774	2950	117.7053	.0497	117.6556
SPD	3	19.6489	14.1944	.1307	11800	59.6092	.0000	59.6092

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	823	27.90
2	205	6.95
3	398	13.49
4	1169	39.63
5	23	.78
6	332	11.25
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	931	31.56
4. - 8.	289	9.80
8. - 12.	100	3.39
12. - 16.	111	3.76
16. - 20.	101	3.42
20. - 24.	71	2.41
24. - 28.	103	3.49
28. - 32.	93	3.15
32. - 36.	86	2.92
36. - 40.	85	2.88
40. - 44.	70	2.37
44. - 48.	58	1.97
48. - 52.	51	1.73
52. - 56.	54	1.83
56. - 60.	55	1.86
60. - 64.	43	1.46
64. - 68.	29	.98
68. - 72.	30	1.02
72. - 76.	20	.68
76. - 80.	31	1.05
80. - 84.	36	1.22
84. - 88.	36	1.22
88. - 92.	42	1.42
92. - 96.	45	1.53
96. - 100.	72	2.44
100. - 104.	105	3.56
104. - 108.	109	3.69
108. - 112.	77	2.61
112. - 116.	16	.54
116. - 120.	1	.03
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2084	17.66
2. - 4.	285	2.42
4. - 6.	225	1.91
6. - 8.	297	2.52
8. - 10.	389	3.30
10. - 12.	415	3.52
12. - 14.	532	4.51
14. - 16.	563	4.77
16. - 18.	548	4.64
18. - 20.	507	4.30
20. - 22.	492	4.17
22. - 24.	719	6.09
24. - 26.	965	8.18
26. - 28.	652	5.53
28. - 30.	927	7.86
30. - 32.	631	5.35
32. - 34.	333	2.82
34. - 36.	137	1.16
36. - 38.	42	.36
38. - 40.	18	.15
40. - 42.	23	.19
42. - 44.	43	.36
44. - 46.	105	.89
46. - 48.	164	1.39
48. - 50.	235	1.99
50. - 52.	182	1.54
52. - 54.	98	.83
54. - 56.	123	1.04
56. - 58.	63	.53
58. - 60.	3	.03

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	240	2.03
400. - 600.	2535	21.48
600. - 800.	304	2.58
800. - 1000.	394	3.34
1000. - 1200.	591	5.01
1200. - 1400.	1043	8.84
1400. - 1600.	1759	14.91
1600. - 1800.	2267	19.21
1800. - 2000.	1838	15.58
2000. - 2200.	811	6.87
2200. - 2400.	17	.14
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-49.

1973 MACK/DETROIT DIESEL 8V-71, 368 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7
RUN DURATION 21.99 MIN., IDLE SPEED 600 RPM, TEST WT. 50580 LB., 3/6/74 RUN 1

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1271.5884	544.1073	5.0782	11480	2245.0000	.0000	2245.0000
FF	2	34.2290	37.4955	.7000	2870	116.6281	.0392	116.5889
SPD	3	20.2532	13.6982	.1278	11480	54.8268	.0000	54.8268

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR

GEAR	COUNT	PERCENT
1	763	26.59
2	217	7.56
3	479	16.69
4	1097	38.22
5	19	.66
6	293	10.21
7	2	.07

PERCENT OF TIME LEVEL <	FF AT COUNT	PERCENT
. - 4.	961	33.48
4. - 8.	223	7.77
8. - 12.	107	3.73
12. - 16.	104	3.62
16. - 20.	98	3.41
20. - 24.	71	2.47
24. - 28.	84	2.93
28. - 32.	98	3.41
32. - 36.	87	3.03
36. - 40.	68	2.37
40. - 44.	74	2.58
44. - 48.	53	1.85
48. - 52.	58	2.02
52. - 56.	33	1.15
56. - 60.	44	1.53
60. - 64.	40	1.39
64. - 68.	28	.98
68. - 72.	30	1.05
72. - 76.	31	1.08
76. - 80.	31	1.08
80. - 84.	28	.98
84. - 88.	48	1.67
88. - 92.	45	1.57
92. - 96.	55	1.92
96. - 100.	65	2.26
100. - 104.	82	2.86
104. - 108.	106	3.69
108. - 112.	77	2.68
112. - 116.	38	1.32
116. - 120.	3	.10
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME LEVEL <	WS AT COUNT	PERCENT
. - 2.	1959	17.06
2. - 4.	651	2.19
4. - 6.	235	2.05
6. - 8.	316	2.75
8. - 10.	263	2.29
10. - 12.	276	2.40
12. - 14.	313	2.73
14. - 16.	477	4.16
16. - 18.	482	4.20
18. - 20.	654	5.70
20. - 22.	591	5.15
22. - 24.	777	6.77
24. - 26.	954	8.31
26. - 28.	740	6.45
28. - 30.	723	6.30
30. - 32.	496	4.32
32. - 34.	377	3.28
34. - 36.	330	2.87
36. - 38.	140	1.22
38. - 40.	150	1.31
40. - 42.	118	1.03
42. - 44.	119	1.04
44. - 46.	175	1.52
46. - 48.	183	1.59
48. - 50.	245	2.13
50. - 52.	107	.93
52. - 54.	28	.24
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME LEVEL <	RPM AT COUNT	PERCENT
. - 200.	9	.08
200. - 400.	119	1.04
400. - 600.	2422	21.10
600. - 800.	285	2.48
800. - 1000.	623	5.43
1000. - 1200.	939	8.18
1200. - 1400.	1373	11.96
1400. - 1600.	1820	15.85
1600. - 1800.	1948	16.97
1800. - 2000.	1182	10.30
2000. - 2200.	744	6.48
2200. - 2400.	16	.14
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-50.
1973 MACK/DETROIT DIESEL 8V-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7
RUN DURATION 21.91 MIN., IDLE SPEED 600 RPM, TEST WT. 50580 LB., 3/7/74 RUN 8

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1353.4180	545.8248	5.1211	11360	2260.0000	225.0000	2035.0000
FF	2	35.8187	34.6717	.6544	2840	114.6557	.0007	114.6550
SPD	3	20.4426	13.5119	.1268	11360	58.2428	.0000	58.2428

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	529	18.63
2	308	10.85
3	820	28.87
4	878	30.92
5	110	3.87
6	195	6.87
7	0	.00

PERCENT OF TIME FF AT LEVEL ≤	COUNT	PERCENT
. - 4.	811	28.56
4. - 8.	161	5.67
8. - 12.	86	3.03
12. - 16.	97	3.42
16. - 20.	109	3.84
20. - 24.	90	3.17
24. - 28.	101	3.56
28. - 32.	131	4.61
32. - 36.	89	3.13
36. - 40.	92	3.24
40. - 44.	101	3.56
44. - 48.	108	3.80
48. - 52.	53	1.87
52. - 56.	51	1.80
56. - 60.	54	1.90
60. - 64.	59	2.08
64. - 68.	65	2.29
68. - 72.	51	1.80
72. - 76.	47	1.65
76. - 80.	50	1.76
80. - 84.	36	1.27
84. - 88.	32	1.13
88. - 92.	32	1.13
92. - 96.	29	1.02
96. - 100.	38	1.34
100. - 104.	88	3.10
104. - 108.	98	3.45
108. - 112.	63	2.22
112. - 116.	18	.63
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL ≤	COUNT	PERCENT
. - 2.	1689	14.87
2. - 4.	226	1.99
4. - 6.	167	1.47
6. - 8.	241	2.12
8. - 10.	429	3.78
10. - 12.	295	2.60
12. - 14.	460	4.05
14. - 16.	509	4.48
16. - 18.	625	5.50
18. - 20.	743	6.54
20. - 22.	950	8.36
22. - 24.	533	4.69
24. - 26.	509	4.48
26. - 28.	897	7.90
28. - 30.	838	7.38
30. - 32.	465	4.09
32. - 34.	297	2.61
34. - 36.	254	2.24
36. - 38.	125	1.10
38. - 40.	37	.33
40. - 42.	32	.28
42. - 44.	141	1.24
44. - 46.	312	2.75
46. - 48.	188	1.65
48. - 50.	131	1.15
50. - 52.	130	1.14
52. - 54.	101	.89
54. - 56.	28	.25
56. - 58.	7	.06
58. - 60.	1	.01

PERCENT OF TIME RPM AT LEVEL ≤	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	37	.33
400. - 600.	2168	19.08
600. - 800.	196	1.73
800. - 1000.	592	5.21
1000. - 1200.	840	7.39
1200. - 1400.	1182	10.40
1400. - 1600.	1523	13.41
1600. - 1800.	2295	20.20
1800. - 2000.	1304	11.48
2000. - 2200.	1189	10.47
2200. - 2400.	34	.30
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-51.

1973 MACK/DETROIT DIESEL 8V-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7
RUN DURATION 24.74 MIN., IDLE SPEED 600 RPM, TEST WT. 50580 LB., 3/7/74 RUN 9

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1257.9856	588.9669	5.1815	12920	2255.0000	350.0000	1905.0000
FF	2	33.2099	36.4148	.6407	3230	114.5856	.0245	114.5611
SPD	3	18.0139	14.7569	.1298	12920	56.4494	.0000	56.4494

GEAR	COUNT	PERCENT OF TIME GEAR SHIFT POSITION AT PERCENT
1	1104	34.18
2	258	7.99
3	742	22.97
4	880	27.24
5	72	2.23
6	174	5.39
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	1125	34.83
4. - 8.	318	9.85
8. - 12.	85	2.63
12. - 16.	78	2.41
16. - 20.	115	3.56
20. - 24.	90	2.79
24. - 28.	103	3.19
28. - 32.	60	1.86
32. - 36.	103	3.19
36. - 40.	71	2.20
40. - 44.	61	1.89
44. - 48.	51	1.58
48. - 52.	50	1.55
52. - 56.	49	1.52
56. - 60.	36	1.11
60. - 64.	46	1.42
64. - 68.	51	1.58
68. - 72.	47	1.46
72. - 76.	49	1.52
76. - 80.	63	1.95
80. - 84.	47	1.46
84. - 88.	71	2.20
88. - 92.	54	1.67
92. - 96.	54	1.67
96. - 100.	89	2.76
100. - 104.	133	4.12
104. - 108.	96	2.97
108. - 112.	30	.93
112. - 116.	5	.15
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT LEVEL <	COUNT	PERCENT
. - 2.	3195	24.73
2. - 4.	327	2.53
4. - 6.	198	1.53
6. - 8.	351	2.72
8. - 10.	511	3.96
10. - 12.	307	2.38
12. - 14.	445	3.44
14. - 16.	546	4.23
16. - 18.	586	4.54
18. - 20.	653	5.05
20. - 22.	512	3.96
22. - 24.	398	3.08
24. - 26.	547	4.23
26. - 28.	1018	7.88
28. - 30.	997	7.72
30. - 32.	635	4.91
32. - 34.	349	2.70
34. - 36.	163	1.26
36. - 38.	81	.63
38. - 40.	27	.21
40. - 42.	25	.19
42. - 44.	47	.36
44. - 46.	126	.98
46. - 48.	204	1.58
48. - 50.	170	1.32
50. - 52.	233	1.80
52. - 54.	231	1.79
54. - 56.	37	.29
56. - 58.	1	.01
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	29	.22
400. - 600.	3810	29.49
600. - 800.	192	1.49
800. - 1000.	356	2.76
1000. - 1200.	749	5.80
1200. - 1400.	932	7.21
1400. - 1600.	1557	12.05
1600. - 1800.	2614	20.23
1800. - 2000.	1896	14.67
2000. - 2200.	760	5.88
2200. - 2400.	25	.19
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-52

1973 MACK/DETROIT DIESEL 8V-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7
RUN DURATION 23.36 MIN., IDLE SPEED 600 RPM, TEST WT. 50580 LB., 327774 RUN 10

TAPE NO		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1272.8804	570.2692	5.1972	12040	2230.0000	200.0000	2030.0000
FF	2	37.3725	38.4914	.7016	3010	137.3499	.0431	137.3067
SPD	3	19.3178	14.7231	.1342	12040	58.3282	.0000	58.3282

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	903	30.00
2	592	19.67
3	1002	33.29
4	255	8.47
5	134	4.45
6	124	4.12
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	847	28.14
4. - 8.	345	11.46
8. - 12.	82	2.72
12. - 16.	78	2.59
16. - 20.	74	2.46
20. - 24.	85	2.82
24. - 28.	75	2.49
28. - 32.	103	3.42
32. - 36.	95	3.16
36. - 40.	83	2.76
40. - 44.	73	2.43
44. - 48.	62	2.06
48. - 52.	82	2.72
52. - 56.	53	1.76
56. - 60.	45	1.50
60. - 64.	35	1.16
64. - 68.	64	2.13
68. - 72.	50	1.66
72. - 76.	42	1.40
76. - 80.	55	1.83
80. - 84.	49	1.63
84. - 88.	58	1.93
88. - 92.	48	1.59
92. - 96.	52	1.73
96. - 100.	70	2.49
100. - 104.	83	2.76
104. - 108.	61	2.03
108. - 112.	25	.83
112. - 116.	19	.63
116. - 120.	10	.33
120. - 124.	29	.96
124. - 128.	49	1.63
128. - 132.	12	.40

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
0. - 2.	2382	19.78
2. - 4.	307	2.55
4. - 6.	245	2.03
6. - 8.	315	2.62
8. - 10.	574	4.77
10. - 12.	315	2.62
12. - 14.	383	3.18
14. - 16.	484	4.02
16. - 18.	616	5.12
18. - 20.	527	4.38
20. - 22.	460	3.82
22. - 24.	480	3.99
24. - 26.	685	5.69
26. - 28.	493	4.16
28. - 30.	1120	9.30
30. - 32.	583	4.84
32. - 34.	213	1.77
34. - 36.	212	1.76
36. - 38.	94	.78
38. - 40.	22	.18
40. - 42.	19	.16
42. - 44.	31	.26
44. - 46.	67	.56
46. - 48.	79	.66
48. - 50.	158	1.31
50. - 52.	240	1.99
52. - 54.	289	2.40
54. - 56.	114	.95
56. - 58.	39	.32
58. - 60.	4	.03

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	62	.51
400. - 600.	3007	24.98
600. - 800.	260	2.16
800. - 1000.	477	3.96
1000. - 1200.	1028	8.54
1200. - 1400.	923	7.67
1400. - 1600.	1470	12.21
1600. - 1800.	2367	19.66
1800. - 2000.	1704	14.19
2000. - 2200.	731	6.07
2200. - 2400.	7	.06
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-8

1970 MACK 58,000-LB GCW TRACTOR
WITH MACK ENDT 673B ENGINE

TABLE C-53.

1970 MACK/MACK ENDT 673H, 672 CID I6 TRACTOR, GCW 58000 LB,, TRUCK D-8
RUN DURATION 26.27 MIN,, IDLE SPEED 500 RPM, TEST WT. 41090 LB,, 3/12/74 RUN 2

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1344.2430	594.5515	21.2069	786	2850.0000	300.0000	2550.0000
FF	2	23.1821	24.8210	.8853	786	97.3695	0.0000	97.3695
SPD	3	17.2185	13.1665	.4696	786	51.3300	.4925	50.8375

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
0 - 4	289	36.77
4 - 8	39	4.96
8 - 12	39	4.96
12 - 16	41	5.22
16 - 20	33	4.20
20 - 24	42	5.34
24 - 28	27	3.44
28 - 32	46	5.85
32 - 36	26	3.31
36 - 40	22	2.80
40 - 44	25	3.18
44 - 48	21	2.67
48 - 52	14	1.78
52 - 56	21	2.67
56 - 60	21	2.67
60 - 64	9	1.15
64 - 68	11	1.40
68 - 72	9	1.15
72 - 76	12	1.53
76 - 80	8	1.02
80 - 84	6	.76
84 - 88	9	1.15
88 - 92	8	1.02
92 - 96	4	.51
96 - 100	4	.51
100 - 104	0	0.00
104 - 108	0	0.00
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0 - 2	166	21.12
2 - 4	25	3.18
4 - 6	17	2.16
6 - 8	23	2.93
8 - 10	25	3.18
10 - 12	34	4.33
12 - 14	47	5.98
14 - 16	60	7.63
16 - 18	26	3.31
18 - 20	22	2.80
20 - 22	18	2.29
22 - 24	70	8.91
24 - 26	55	7.00
26 - 28	69	8.78
28 - 30	29	3.69
30 - 32	33	4.20
32 - 34	0	0.00
34 - 36	2	.25
36 - 38	0	0.00
38 - 40	3	.38
40 - 42	12	1.53
42 - 44	6	.76
44 - 46	7	.89
46 - 48	20	2.54
48 - 50	15	1.91
50 - 52	2	.25
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0 - 200	0	0.00
200 - 400	2	.25
400 - 600	203	25.83
600 - 800	21	2.67
800 - 1000	22	2.80
1000 - 1200	27	3.44
1200 - 1400	36	4.58
1400 - 1600	81	10.31
1600 - 1800	153	19.47
1800 - 2000	142	18.07
2000 - 2200	98	12.47
2200 - 2400	0	0.00
2400 - 2600	0	0.00
2600 - 2800	0	0.00
2800 - 3000	1	.13
3000 - 3200	0	0.00
3200 - 3400	0	0.00
3400 - 3600	0	0.00
3600 - 3800	0	0.00
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	0	0.00
4400 - 4600	0	0.00
4600 - 4800	0	0.00
4800 - 5000	0	0.00

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TABLE C-54.

1970 MACK/MACK ENDT 673B, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 22.23 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/12/74 RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1377.3012	550.3118	21.5189	654	2100.0000	350.0000	1750.0000
FF	2	25.3067	27.4442	1.0634	666	93.8685	.5603	93.3082
SPD	3	20.4937	14.2723	.5581	654	52.2150	.4425	51.7725

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
< 0 - 4	249	37.39
4 - 8	29	4.35
8 - 12	27	4.05
12 - 16	49	7.36
16 - 20	25	3.75
20 - 24	26	3.90
24 - 28	21	3.15
28 - 32	23	3.45
32 - 36	23	3.45
36 - 40	19	2.85
40 - 44	9	1.35
44 - 48	12	1.80
48 - 52	12	1.80
52 - 56	15	2.25
56 - 60	15	2.25
60 - 64	18	2.70
64 - 68	15	2.25
68 - 72	10	1.50
72 - 76	17	2.55
76 - 80	8	1.20
80 - 84	23	3.45
84 - 88	13	1.95
88 - 92	6	.90
92 - 96	2	.30
96 - 100	0	0.00
100 - 104	0	0.00
104 - 108	0	0.00
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 0 - 2	122	18.65
2 - 4	10	1.53
4 - 6	11	1.68
6 - 8	18	2.75
8 - 10	13	1.99
10 - 12	24	3.67
12 - 14	31	4.74
14 - 16	47	7.19
16 - 18	11	1.68
18 - 20	15	2.29
20 - 22	24	3.67
22 - 24	50	7.65
24 - 26	38	5.81
26 - 28	16	2.45
28 - 30	27	4.13
30 - 32	84	12.84
32 - 34	22	3.36
34 - 36	16	2.45
36 - 38	9	1.38
38 - 40	3	.46
40 - 42	4	.61
42 - 44	2	.31
44 - 46	7	1.07
46 - 48	26	3.98
48 - 50	18	2.75
50 - 52	5	.76
52 - 54	1	.15
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 0 - 200	0	0.00
200 - 400	1	.15
400 - 600	134	20.49
600 - 800	20	3.06
800 - 1000	12	1.83
1000 - 1200	30	4.59
1200 - 1400	50	7.65
1400 - 1600	96	14.68
1600 - 1800	138	21.10
1800 - 2000	96	14.68
2000 - 2200	77	11.77
2200 - 2400	0	0.00
2400 - 2600	0	0.00
2600 - 2800	0	0.00
2800 - 3000	0	0.00
3000 - 3200	0	0.00
3200 - 3400	0	0.00
3400 - 3600	0	0.00
3600 - 3800	0	0.00
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	0	0.00
4400 - 4600	0	0.00
4600 - 4800	0	0.00
4800 - 5000	0	0.00

TABLE C-55.

1970 MACK/MACK ENDT 673B, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 21.57 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/13/74 RUN 9

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1389.0937	556.7213	21.8196	651	4750.0000	450.0000	4300.0000
FF	2	25.1296	25.8701	1.0186	645	91.2418	.6102	90.6316
SPD	3	20.7669	13.6188	.5338	651	51.3300	.4425	50.8875

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
< 0 - 4	214	33.18
4 - 8	36	5.58
8 - 12	22	3.41
12 - 16	44	6.82
16 - 20	33	5.12
20 - 24	38	5.89
24 - 28	34	5.27
28 - 32	16	2.48
32 - 36	24	3.72
36 - 40	8	1.24
40 - 44	24	3.72
44 - 48	20	3.10
48 - 52	17	2.64
52 - 56	17	2.64
56 - 60	10	1.55
60 - 64	13	2.02
64 - 68	9	1.40
68 - 72	10	1.55
72 - 76	13	2.02
76 - 80	7	1.09
80 - 84	14	2.17
84 - 88	14	2.17
88 - 92	8	1.24
92 - 96	0	0.00
96 - 100	0	0.00
100 - 104	0	0.00
104 - 108	0	0.00
108 - 112	0	0.00
112 - 116	0	0.00
116 - 120	0	0.00
120 - 124	0	0.00
124 - 128	0	0.00
128 - 132	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 0 - 2	101	15.51
2 - 4	10	1.54
4 - 6	10	1.54
6 - 8	18	2.76
8 - 10	18	2.76
10 - 12	28	4.30
12 - 14	24	3.69
14 - 16	42	6.45
16 - 18	22	3.38
18 - 20	23	3.53
20 - 22	22	3.38
22 - 24	63	9.68
24 - 26	21	3.23
26 - 28	38	5.84
28 - 30	90	13.82
30 - 32	23	3.53
32 - 34	8	1.23
34 - 36	15	2.30
36 - 38	6	.92
38 - 40	7	1.08
40 - 42	5	.77
42 - 44	3	.46
44 - 46	2	.31
46 - 48	23	3.53
48 - 50	22	3.38
50 - 52	7	1.08
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 0 - 200	0	0.00
200 - 400	0	0.00
400 - 600	116	17.82
600 - 800	16	2.46
800 - 1000	18	2.76
1000 - 1200	24	3.69
1200 - 1400	61	9.37
1400 - 1600	176	27.04
1600 - 1800	112	17.20
1800 - 2000	58	8.91
2000 - 2200	66	10.14
2200 - 2400	1	.15
2400 - 2600	0	0.00
2600 - 2800	0	0.00
2800 - 3000	0	0.00
3000 - 3200	0	0.00
3200 - 3400	0	0.00
3400 - 3600	0	0.00
3600 - 3800	0	0.00
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	0	0.00
4400 - 4600	0	0.00
4600 - 4800	3	.46
4800 - 5000	0	0.00

TABLE C-56.

1970 MACK/MACK ENDT 673M, 672 CID IN TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 23.44 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 4/15/74 RUN 1

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1291.6326	508.9860	4.5856	12320	2025.0000	290.0000	1735.0000
FF	2	25.6617	22.5208	.4058	3080	97.9009	.3329	97.5680
SPD	3	19.3349	12.9512	.1167	12320	53.2770	.0000	53.2770

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	741	24.06
2	278	9.03
3	480	15.58
4	1270	41.23
5	31	1.01
6	277	8.99
7	3	.10

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	703	22.82
4. - 8.	268	8.70
8. - 12.	131	4.25
12. - 16.	202	6.56
16. - 20.	207	6.72
20. - 24.	187	6.07
24. - 28.	178	5.79
28. - 32.	152	4.94
32. - 36.	163	5.29
36. - 40.	140	4.55
40. - 44.	114	3.70
44. - 48.	94	3.05
48. - 52.	89	2.89
52. - 56.	102	3.31
56. - 60.	75	2.44
60. - 64.	46	1.49
64. - 68.	35	1.14
68. - 72.	38	1.23
72. - 76.	42	1.36
76. - 80.	38	1.23
80. - 84.	27	.88
84. - 88.	20	.65
88. - 92.	20	.65
92. - 96.	8	.26
96. - 100.	1	.03
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	1753	14.23
2. - 4.	232	1.88
4. - 6.	339	2.75
6. - 8.	423	3.43
8. - 10.	320	2.60
10. - 12.	514	4.17
12. - 14.	610	4.95
14. - 16.	658	5.34
16. - 18.	521	4.23
18. - 20.	578	4.69
20. - 22.	833	6.76
22. - 24.	905	7.35
24. - 26.	1163	9.44
26. - 28.	1502	12.19
28. - 30.	500	4.06
30. - 32.	266	2.16
32. - 34.	36	.29
34. - 36.	26	.21
36. - 38.	24	.19
38. - 40.	62	.50
40. - 42.	59	.48
42. - 44.	47	.38
44. - 46.	105	.85
46. - 48.	283	2.30
48. - 50.	403	3.27
50. - 52.	148	1.20
52. - 54.	10	.08
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1177	9.55
400. - 600.	1251	10.15
600. - 800.	277	2.25
800. - 1000.	423	3.43
1000. - 1200.	696	5.65
1200. - 1400.	1496	12.14
1400. - 1600.	2641	21.44
1600. - 1800.	2674	21.70
1800. - 2000.	1682	13.65
2000. - 2200.	3	.02
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-57.

1970 MACK/MACK ENDT 673P, 672 CIU 16 TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 22.72 MIN., IDLE SPEED 500 RPM TEST WT. 41090 LB., 3/15/74 RUN 2

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1316.7703	545.4149	4.9956	11920	2075.0000	215.0000	1860.0000
FF	2	29.4877	27.2762	.4997	2980	111.1848	.3616	110.8232
SPD	3	19.9351	13.8958	.1273	11920	53.5425	.0000	53.5425

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	795	26.68
2	274	9.19
3	389	13.05
4	1182	39.66
5	339	11.38
6	0	.00
7	1	.03

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
<		
. - 4.	577	19.36
4. - 8.	450	15.10
8. - 12.	150	5.03
12. - 16.	133	4.46
16. - 20.	[illegible]	4.09
20. - 24.	128	4.30
24. - 28.	114	3.83
28. - 32.	133	4.46
32. - 36.	110	3.69
36. - 40.	130	4.36
40. - 44.	111	3.72
44. - 48.	102	3.42
48. - 52.	81	2.72
52. - 56.	79	2.65
56. - 60.	79	2.65
60. - 64.	85	2.85
64. - 68.	51	1.71
68. - 72.	36	1.21
72. - 76.	58	1.95
76. - 80.	41	1.3[illegible]
80. - 84.	51	1.71
84. - 88.	32	1.07
88. - 92.	42	1.41
92. - 96.	36	1.21
96. - 100.	29	.97
100. - 104.	15	.50
104. - 108.	3	.10
108. - 112.	2	.07
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
<		
. - 2.	2081	17.46
2. - 4.	200	1.68
4. - 6.	228	1.91
6. - 8.	296	2.48
8. - 10.	245	2.06
10. - 12.	484	4.06
12. - 14.	455	3.82
14. - 16.	674	5.65
16. - 18.	539	4.52
18. - 20.	446	3.74
20. - 22.	444	3.72
22. - 24.	805	6.75
24. - 26.	751	6.30
26. - 28.	1231	0.33
28. - 30.	1049	8.80
30. - 32.	646	5.42
32. - 34.	146	1.24
34. - 36.	30	.25
36. - 38.	21	.18
38. - 40.	26	.22
40. - 42.	30	.25
42. - 44.	30	.25
44. - 46.	47	.39
46. - 48.	25[illegible]	[illegible].10
48. - 50.	525	4.40
50. - 52.	225	1.89
52. - 54.	14	.12
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
<		
. - 200.	0	.00
200. - 400.	1392	11.68
400. - 600.	1074	9.01
600. - 800.	207	1.74
800. - 1000.	367	3.08
1000. - 1200.	932	7.82
1200. - 1400.	1119	9.39
1400. - 1600.	1612	13.52
1600. - 1800.	2665	22.36
1800. - 2000.	2510	21.06
2000. - 2200.	42	.35
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
46[illegible]. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-58.

1970 MACK/MACK ENDT 673P, 672 CID 16 TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 21.83 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/15/74 RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1358.0537	569.5937	5.3254	11440	2155.0000	235.0000	1920.0000
FF	2	27.7990	26.9729	.5044	2860	94.4662	.2701	94.1961
SPD	3	20.7932	13.9058	.1300	11440	53.6310	.0000	53.6310

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	690	24.13
2	221	7.73
3	284	9.93
4	1341	46.89
5	26	.91
6	297	10.38
7	1	.03

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	911	31.85
4. - 8.	188	6.57
8. - 12.	108	3.78
12. - 16.	101	3.53
16. - 20.	117	4.09
20. - 24.	124	4.34
24. - 28.	153	5.35
28. - 32.	105	3.67
32. - 36.	100	3.50
36. - 40.	91	3.18
40. - 44.	79	2.76
44. - 48.	65	2.27
48. - 52.	84	2.94
52. - 56.	76	2.66
56. - 60.	80	2.80
60. - 64.	80	2.80
64. - 68.	62	2.17
68. - 72.	62	2.17
72. - 76.	55	1.92
76. - 80.	61	2.13
80. - 84.	58	2.03
84. - 88.	47	1.64
88. - 92.	36	1.26
92. - 96.	17	.59
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	1827	15.97
2. - 4.	117	1.02
. - 6.	147	1.28
6. - 8.	232	2.03
8. - 10.	306	2.67
10. - 12.	522	4.56
12. - 14.	604	5.28
14. - 16.	710	6.21
16. - 18.	388	3.39
18. - 20.	290	2.53
20. - 22.	386	3.37
22. - 24.	796	6.96
24. - 26.	1007	8.80
26. - 28.	607	5.31
28. - 30.	798	6.98
30. - 32.	1055	9.22
32. - 34.	365	3.19
34. - 36.	110	.96
36. - 38.	44	.38
38. - 40.	20	.17
40. - 42.	34	.30
42. - 44.	36	.31
44. - 46.	47	.41
46. - 48.	241	2.11
48. - 50.	509	4.45
50. - 52.	218	1.91
52. - 54.	24	.21
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1190	10.40
400. - 600.	1048	9.16
600. - 800.	389	3.40
800. - 1000.	439	3.84
1000. - 1200.	658	5.75
1200. - 1400.	871	7.61
1400. - 1600.	1644	14.37
1600. - 1800.	1729	15.11
1800. - 2000.	3019	26.39
2000. - 2200.	453	3.96
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-59.

1970 MACK/MACK ENDT 6738, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 22.26 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/15/74 RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1281.6934	558.8901	5.1802	11640	2070.0000	300.0000	1770.0000
FF	2	26.5217	28.4841	.5280	2910	95.1413	.2652	94.8767
SPD	3	20.3340	13.9413	.1292	11640	53.1000	.0000	53.1000

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	702	24.12
2	207	7.11
3	433	14.88
4	994	34.16
5	342	11.75
6	227	7.80
7	5	.17

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1102	37.87
4. - 8.	123	4.23
8. - 12.	155	5.33
12. - 16.	141	4.85
16. - 20.	120	4.12
20. - 24.	104	3.57
24. - 28.	87	2.99
28. - 32.	92	3.16
32. - 36.	69	2.37
36. - 40.	64	2.20
40. - 44.	63	2.16
44. - 48.	60	2.06
48. - 52.	67	2.30
52. - 56.	57	1.96
56. - 60.	72	2.47
60. - 64.	73	2.51
64. - 68.	72	2.47
68. - 72.	61	2.10
72. - 76.	61	2.10
76. - 80.	74	2.54
80. - 84.	51	1.75
84. - 88.	64	2.20
88. - 92.	63	2.16
92. - 96.	15	.52
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2018	17.34
2. - 4.	227	1.95
4. - 6.	179	1.54
6. - 8.	240	2.06
8. - 10.	236	2.03
10. - 12.	332	2.85
12. - 14.	443	3.81
14. - 16.	751	6.45
16. - 18.	499	4.29
18. - 20.	468	4.02
20. - 22.	545	4.68
22. - 24.	808	6.94
24. - 26.	1049	9.01
26. - 28.	613	5.27
28. - 30.	714	6.13
30. - 32.	681	5.85
32. - 34.	245	2.10
34. - 36.	201	1.73
36. - 38.	191	1.64
38. - 40.	79	.68
40. - 42.	74	.64
42. - 44.	111	.95
44. - 46.	102	.88
46. - 48.	265	2.28
48. - 50.	410	3.52
50. - 52.	144	1.24
52. - 54.	15	.13
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1088	9.35
400. - 600.	1599	13.74
600. - 800.	262	2.25
800. - 1000.	400	3.44
1000. - 1200.	856	7.35
1200. - 1400.	1312	11.27
1400. - 1600.	1651	14.18
1600. - 1800.	1836	15.77
1800. - 2000.	2475	21.26
2000. - 2200.	161	1.38
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-60.

1970 MACK/MACK ENDT 673B, 672 CID I6 IMACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 22.71 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/15/74 RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1191.3665	516.8333	4.7102	12040	2060.0000	290.0000	1770.0000
FF	2	25.5439	26.1778	.4771	3010	95.1387	.2981	94.8406
SPD	3	19.8280	14.2869	.1302	12040	53.6310	.0000	53.6310

GEAR	PERCENT OF TIME GEAR SHIFT POSITION AT COUNT	PERCENT
1	811	26.94
2	178	5.91
3	215	7.14
4	890	29.57
5	529	17.57
6	386	12.82
7	1	.03

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	1061	35.25
4. - 8.	127	4.22
8. - 12.	169	5.61
12. - 16.	119	3.95
16. - 20.	138	4.58
20. - 24.	152	5.05
24. - 28.	125	4.15
28. - 32.	146	4.85
32. - 36.	89	2.96
36. - 40.	66	2.19
40. - 44.	74	2.46
44. - 48.	75	2.49
48. - 52.	88	2.92
52. - 56.	76	2.52
56. - 60.	74	2.46
60. - 64.	62	2.06
64. - 68.	64	2.13
68. - 72.	52	1.73
72. - 76.	65	2.16
76. - 80.	43	1.43
80. - 84.	53	1.76
84. - 88.	51	1.69
88. - 92.	28	.93
92. - 96.	6	.20
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2315	19.23
2. - 4.	174	1.45
4. - 6.	182	1.51
6. - 8.	275	2.28
8. - 10.	283	2.35
10. - 12.	531	4.41
12. - 14.	463	3.85
14. - 16.	671	5.57
16. - 18.	517	4.29
18. - 20.	496	4.12
20. - 22.	674	5.60
22. - 24.	740	6.15
24. - 26.	512	4.25
26. - 28.	590	4.90
28. - 30.	859	7.13
30. - 32.	725	6.02
32. - 34.	408	3.39
34. - 36.	363	3.01
36. - 38.	99	.82
38. - 40.	42	.35
40. - 42.	29	.24
42. - 44.	39	.32
44. - 46.	123	1.02
46. - 48.	336	2.79
48. - 50.	355	2.95
50. - 52.	225	1.87
52. - 54.	14	.12
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1391	11.55
400. - 600.	1386	11.51
600. - 800.	321	2.67
800. - 1000.	844	7.01
1000. - 1200.	1146	9.52
1200. - 1400.	1638	13.60
1400. - 1600.	2305	19.14
1600. - 1800.	1596	13.26
1800. - 2000.	1332	11.06
2000. - 2200.	81	.67
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-61.

1970 MACK/MACK ENDT 6738, 672 CID IE TRACTOR, GCW 58000 LB., TRUCK D-8
RUN DURATION 23.26 MIN., IDLE SPEED 500 RPM, TEST WT. 41090 LB., 3/15/74 RUN 6

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1201.1013	509.1769	4.6174	12160	2055.0000	.0000	2055.0000
FF	2	23.2347	24.5157	.4446	3040	93.3065	.2588	93.0477
SPD	3	19.5914	13.7512	.1247	12160	51.1530	.0000	51.1530

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	796	26.18
2	132	4.34
3	299	9.84
4	1011	33.26
5	503	16.55
6	297	9.77
7	2	.07

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1094	35.99
4. - 8.	205	6.74
8. - 12.	145	4.77
12. - 16.	152	5.00
16. - 20.	152	5.00
20. - 24.	125	4.11
24. - 28.	117	3.85
28. - 32.	111	3.65
32. - 36.	107	3.52
36. - 40.	87	2.86
40. - 44.	91	2.99
44. - 48.	93	3.06
48. - 52.	68	2.24
52. - 56.	79	2.60
56. - 60.	59	1.94
60. - 64.	73	2.40
64. - 68.	53	1.74
68. - 72.	44	1.45
72. - 76.	38	1.25
76. - 80.	54	1.78
80. - 84.	52	1.71
84. - 88.	32	1.05
88. - 92.	8	.26
92. - 96.	1	.03
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2349	19.32
2. - 4.	167	1.37
4. - 6.	141	1.16
6. - 8.	179	1.47
8. - 10.	286	2.35
10. - 12.	490	4.03
12. - 14.	526	4.33
14. - 16.	592	4.87
16. - 18.	564	4.64
18. - 20.	522	4.29
20. - 22.	700	5.76
22. - 24.	1012	8.32
24. - 26.	1003	8.25
26. - 28.	754	6.20
28. - 30.	568	4.67
30. - 32.	385	3.17
32. - 34.	301	2.48
34. - 36.	231	1.90
36. - 38.	150	1.23
38. - 40.	58	.48
40. - 42.	36	.30
42. - 44.	93	.76
44. - 46.	356	2.93
46. - 48.	524	4.31
48. - 50.	163	1.34
50. - 52.	10	.08
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	23	.19
200. - 400.	1321	10.86
400. - 600.	1447	11.90
600. - 800.	323	2.66
800. - 1000.	495	4.07
1000. - 1200.	1088	8.95
1200. - 1400.	2097	17.25
1400. - 1600.	2354	19.36
1600. - 1800.	1671	13.74
1800. - 2000.	1330	10.94
2000. - 2200.	11	.09
2200. - 2400.	0	.00
2400. - 2600.	0	.00
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-9

1973 MACK 72,000-LB GCW TRACTOR
WITH CUMMINS NTC-290 ENGINE

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TABLE C-62.

1973 MACK/CUMMINS NTC 290, 855 CID I6 TRACTOR, GCW 72000 LB., TRUCK D 9
RUN DURATION 22.73 MIN., IDLE SPEED 600 RPM, TEST WT. 50980 LM., 3/16/74 RUN 2

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1438.6736	581.7596	5.3465	11840	2450.0000	355.0000	2095.0000
FF	2	38.0811	37.4308	.6880	2960	125.1612	.0502	124.3110
SPD	3	19.7518	15.0629	.1384	11840	62.6580	.0000	62.6580

GEAR	COUNT	PERCENT OF TIME GEAR SHIFT POSITION AT PERCENT
1	935	31.59
2	227	7.67
3	658	22.23
4	851	28.75
5	31	1.05
6	257	8.68
7	1	.03

PERCENT OF TIME FF AT LEVEL	COUNT	PERCENT
. - 4.	374	12.64
4. - 8.	649	21.93
8. - 12.	102	3.45
12. - 16.	104	3.51
16. - 20.	110	3.72
20. - 24.	103	3.48
24. - 28.	109	3.68
28. - 32.	112	3.78
32. - 36.	108	3.65
36. - 40.	102	3.45
40. - 44.	95	3.21
44. - 48.	82	2.77
48. - 52.	54	1.82
52. - 56.	67	2.26
56. - 60.	40	1.35
60. - 64.	41	1.39
64. - 68.	45	1.52
68. - 72.	43	1.45
72. - 76.	27	.91
76. - 80.	32	1.08
80. - 84.	31	1.05
84. - 88.	34	1.15
88. - 92.	34	1.15
92. - 96.	35	1.18
96. - 100.	35	1.18
100. - 104.	57	1.93
104. - 108.	77	2.60
108. - 112.	109	3.68
112. - 116.	97	3.28
116. - 120.	36	1.22
120. - 124.	11	.37
124. - 128.	1	.03
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
. - 2.	2525	21.33
2. - 4.	250	2.11
4. - 6.	267	2.26
6. - 8.	248	2.09
8. - 10.	239	2.02
10. - 12.	242	2.04
12. - 14.	257	2.17
14. - 16.	528	4.46
16. - 18.	590	4.98
18. - 20.	590	4.98
20. - 22.	546	4.61
22. - 24.	715	6.04
24. - 26.	810	6.84
26. - 28.	569	4.97
28. - 30.	985	8.32
30. - 32.	737	6.22
32. - 34.	297	2.51
34. - 36.	227	1.92
36. - 38.	136	1.15
38. - 40.	31	.26
40. - 42.	24	.20
42. - 44.	105	.89
44. - 46.	117	.99
46. - 48.	113	.95
48. - 50.	37	.31
50. - 52.	42	.35
52. - 54.	122	1.03
54. - 56.	204	1.72
56. - 58.	153	1.29
58. - 60.	89	.75

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2	.02
400. - 600.	1415	11.95
600. - 800.	1674	14.14
800. - 1000.	282	2.38
1000. - 1200.	550	4.65
1200. - 1400.	696	5.88
1400. - 1600.	1425	12.04
1600. - 1800.	1743	14.72
1800. - 2000.	1848	15.61
2000. - 2200.	1282	10.83
2200. - 2400.	921	7.78
2400. - 2600.	2	.02
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-63.
1973 MACK/CUMMINS NTC 290, 855 CID I6 TRACTOR, GCW 72000 LB., TRUCK D 9
RUN DURATION 21.68 MIN., IDLE SPEED 600 RPM, TEST WT. 50980 LB., 3/16/74 RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1490.9824	578.0917	5.4143	11400	2425.0000	345.0000	2080.0000
FF	2	40.3164	37.7687	.7075	2850	122.5703	.4938	122.0764
SPD	3	20.7961	14.9199	.1397	11400	60.9765	.0000	60.9765

GEAR	COUNT	PERCENT OF TIME GEAR SHIFT POSITION AT PERCENT
1	801	28.11
2	165	5.79
3	631	22.14
4	946	33.19
5	18	.63
6	283	9.93
7	1	.04

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	529	18.56
4. - 8.	413	14.49
8. - 12.	103	3.61
12. - 16.	109	3.82
16. - 20.	115	4.04
20. - 24.	82	2.88
24. - 28.	82	2.88
28. - 32.	81	2.84
32. - 36.	68	2.39
36. - 40.	73	2.56
40. - 44.	79	2.77
44. - 48.	82	2.88
48. - 52.	59	2.07
52. - 56.	54	1.89
56. - 60.	43	1.51
60. - 64.	57	2.00
64. - 68.	54	1.89
68. - 72.	61	2.14
72. - 76.	52	1.82
76. - 80.	41	1.44
80. - 84.	37	1.30
84. - 88.	42	1.47
88. - 92.	59	2.07
92. - 96.	66	2.32
96. - 100.	60	2.11
100. - 104.	85	2.98
104. - 108.	123	4.32
108. - 112.	96	3.37
112. - 116.	35	1.23
116. - 120.	9	.32
120. - 124.	1	.04
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
0. - 2.	1960	17.19
2. - 4.	242	2.12
4. - 6.	353	3.10
6. - 8.	291	2.55
8. - 10.	233	2.04
10. - 12.	260	2.28
12. - 14.	342	3.00
14. - 16.	457	4.01
16. - 18.	433	3.80
18. - 20.	726	6.37
20. - 22.	589	5.17
22. - 24.	663	5.82
24. - 26.	660	5.79
26. - 28.	605	5.31
28. - 30.	835	7.32
30. - 32.	781	6.85
32. - 34.	473	4.15
34. - 36.	262	2.30
36. - 38.	174	1.53
38. - 40.	26	.23
40. - 42.	15	.13
42. - 44.	18	.16
44. - 46.	60	.53
46. - 48.	70	.61
48. - 50.	122	1.07
50. - 52.	200	1.75
52. - 54.	204	1.79
54. - 56.	159	1.39
56. - 58.	126	1.11
58. - 60.	58	.51

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	4	.04
400. - 600.	1370	12.02
600. - 800.	1227	10.76
800. - 1000.	363	3.18
1000. - 1200.	451	3.96
1200. - 1400.	704	6.18
1400. - 1600.	1200	10.53
1600. - 1800.	1492	13.09
1800. - 2000.	2088	18.32
2000. - 2200.	1660	14.56
2200. - 2400.	839	7.36
2400. - 2600.	2	.02
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-64.
1973 MACK/CUMMINS NTC 290, 855 CID 16 TRACTOR, GCW 72000 LB., TRUCK D 9
RUN DURATION 20.66 MIN., IDLE SPEED 600 RPM, TEST WT. 50980 LB., 3/18/74 RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1491.2581	593.0891	5.6446	11040	2420.0000	310.0000	2110.0000
FF	2	38.6174	37.7305	.7183	2760	122.7567	.4849	122.2717
SPD	3	21.4778	15.3346	.1459	11040	62.2155	.0000	62.2155

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	669	24.24
2	137	4.96
3	329	11.59
4	1306	47.32
5	3	.11
6	325	11.78
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	637	23.08
4. - 8.	382	13.84
8. - 12.	81	2.93
12. - 16.	85	3.08
16. - 20.	77	2.79
20. - 24.	102	3.70
24. - 28.	81	2.93
28. - 32.	65	2.36
32. - 36.	72	2.61
36. - 40.	67	2.43
40. - 44.	80	2.90
44. - 48.	79	2.86
48. - 52.	61	2.21
52. - 56.	53	1.92
56. - 60.	31	1.12
60. - 64.	52	1.88
64. - 68.	43	1.56
68. - 72.	36	1.30
72. - 76.	43	1.56
76. - 80.	40	1.45
80. - 84.	45	1.63
84. - 88.	45	1.63
88. - 92.	49	1.78
92. - 96.	50	1.81
96. - 100.	85	3.08
100. - 104.	137	4.96
104. - 108.	101	3.66
108. - 112.	52	1.88
112. - 116.	20	.72
116. - 120.	7	.25
120. - 124.	2	.07
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT LEVEL <	COUNT	PERCENT
0. - 2.	2052	18.59
2. - 4.	192	1.74
4. - 6.	162	1.47
6. - 8.	194	1.76
8. - 10.	258	2.34
10. - 12.	237	2.15
12. - 14.	269	2.44
14. - 16.	358	3.24
16. - 18.	493	4.47
18. - 20.	631	5.72
20. - 22.	431	3.90
22. - 24.	813	7.36
24. - 26.	669	6.06
26. - 28.	555	5.03
28. - 30.	848	7.68
30. - 32.	792	7.17
32. - 34.	351	3.18
34. - 36.	347	3.14
36. - 38.	374	3.39
38. - 40.	59	.53
40. - 42.	17	.15
42. - 44.	17	.15
44. - 46.	26	.24
46. - 48.	21	.19
48. - 50.	45	.41
50. - 52.	78	.71
52. - 54.	178	1.61
54. - 56.	256	2.32
56. - 58.	195	1.77
58. - 60.	96	.87

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	7	.06
400. - 600.	974	8.82
600. - 800.	1666	15.09
800. - 1000.	224	2.03
1000. - 1200.	631	5.72
1200. - 1400.	685	6.20
1400. - 1600.	1321	11.97
1600. - 1800.	1025	9.28
1800. - 2000.	1776	16.09
2000. - 2200.	1526	13.82
2200. - 2400.	1200	10.87
2400. - 2600.	5	.05
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-65.

1973 MACK/CUMMINS NTC 290, 855 CID 10 TRACTOR, GCW 72000 LB., TRUCK L 9
RUN DURATION 23.23 MIN., IDLE SPEED 600 RPM, TEST WT. 50450 LB., 3/15/74 RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1378.1794	566.0367	5.1079	12280	2435.0000	600.0000	2155.0000
FF	2	33.1346	34.9081	.6300	3070	118.6306	.4417	118.2445
SPD	3	19.2452	14.3251	.1293	12280	56.9940	.0000	56.9940

GEAR	PERCENT OF TIME GEAR SHIFT POSITION AT COUNT	PERCENT
1	1014	33.03
2	214	6.97
3	466	15.18
4	1057	34.43
5	18	.59
6	301	9.80
7	0	.00

PERCENT OF TIME FF AT LEVEL	COUNT	PERCENT
. - 4.	899	29.28
4. - 8.	369	12.02
8. - 12.	132	4.30
12. - 16.	74	2.41
16. - 20.	80	2.61
20. - 24.	91	2.96
24. - 28.	83	2.70
28. - 32.	95	3.09
32. - 36.	89	2.90
36. - 40.	93	3.03
40. - 44.	87	2.83
44. - 48.	89	2.90
48. - 52.	61	1.99
52. - 56.	80	2.61
56. - 60.	45	1.47
60. - 64.	52	1.69
64. - 68.	42	1.37
68. - 72.	50	1.63
72. - 76.	43	1.40
76. - 80.	46	1.50
80. - 84.	37	1.21
84. - 88.	37	1.21
88. - 92.	31	1.01
92. - 96.	40	1.30
96. - 100.	83	2.70
100. - 104.	116	3.78
104. - 108.	67	2.18
108. - 112.	46	1.50
112. - 116.	12	.39
116. - 120.	1	.03
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
. - 2.	2157	17.57
2. - 4.	403	3.28
4. - 6.	454	3.70
6. - 8.	413	3.36
8. - 10.	388	3.16
10. - 12.	311	2.53
12. - 14.	396	3.22
14. - 16.	491	4.00
16. - 18.	647	5.27
18. - 20.	826	6.73
20. - 22.	581	4.73
22. - 24.	578	4.71
24. - 26.	719	5.86
26. - 28.	636	5.18
28. - 30.	500	4.07
30. - 32.	557	4.54
32. - 34.	519	4.23
34. - 36.	302	2.46
36. - 38.	243	1.98
38. - 40.	37	.30
40. - 42.	18	.15
42. - 44.	42	.34
44. - 46.	158	1.29
46. - 48.	416	3.39
48. - 50.	287	2.34
50. - 52.	132	1.07
52. - 54.	48	.39
54. - 56.	19	.15
56. - 58.	2	.02
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	15	.12
400. - 600.	1027	8.36
600. - 800.	2302	18.75
800. - 1000.	450	3.66
1000. - 1200.	531	4.32
1200. - 1400.	993	8.09
1400. - 1600.	1486	12.10
1600. - 1800.	1624	13.22
1800. - 2000.	2026	16.50
2000. - 2200.	1115	9.08
2200. - 2400.	709	5.77
2400. - 2600.	2	.02
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-66.

1973 MACK/CUMMINS NTC 240, 855 CID IN TRACTOR, GCW 72000 LM., TRUCK # 4
RUN DURATION 21.81 MIN., IDLE SPEED 600 RPM, TEST WT. 50480 LM., 3/19/74 RUN 5

VAR NO		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1492.4082	600.3121	5.6126	11440	2465.0000	420.0000	2045.0000
FF	2	34.4289	34.0762	.7306	2860	121.0234	.4883	120.5352
SPD	3	21.1197	15.0846	.1467	11440	62.3925	.0000	62.3925

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	784	27.41
2	174	6.08
3	776	27.13
4	823	28.78
5	46	1.61
6	256	8.95
7	1	.03

PERCENT OF TIME FF AT LEVEL	COUNT	PERCENT
. - 4.	561	19.62
4. - 8.	520	18.18
8. - 12.	82	2.87
12. - 16.	77	2.69
16. - 20.	89	3.11
20. - 24.	91	3.18
24. - 28.	59	2.06
28. - 32.	79	2.76
32. - 36.	81	2.83
36. - 40.	76	2.66
40. - 44.	68	2.38
44. - 48.	48	1.68
48. - 52.	50	1.75
52. - 56.	53	1.85
56. - 60.	55	1.92
60. - 64.	43	1.50
64. - 68.	42	1.47
68. - 72.	35	1.22
72. - 76.	40	1.40
76. - 80.	42	1.47
80. - 84.	47	1.64
84. - 88.	50	1.75
88. - 92.	45	1.57
92. - 96.	60	2.10
96. - 100.	71	2.48
100. - 104.	98	3.43
104. - 108.	154	5.38
108. - 112.	95	3.32
112. - 116.	37	1.29
116. - 120.	10	.35
120. - 124.	2	.07
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
. - 2.	2325	20.32
2. - 4.	165	1.44
4. - 6.	258	2.26
6. - 8.	205	1.79
8. - 10.	230	2.01
10. - 12.	261	2.28
12. - 14.	313	2.74
14. - 16.	434	3.79
16. - 18.	582	5.09
18. - 20.	548	4.79
20. - 22.	315	2.75
22. - 24.	552	4.83
24. - 26.	686	6.00
26. - 28.	707	6.18
28. - 30.	636	5.56
30. - 32.	768	6.71
32. - 34.	607	5.31
34. - 36.	452	3.95
36. - 38.	299	2.61
38. - 40.	62	.54
40. - 42.	21	.18
42. - 44.	19	.17
44. - 46.	47	.41
46. - 48.	56	.49
48. - 50.	72	.63
50. - 52.	134	1.17
52. - 54.	182	1.59
54. - 56.	124	1.08
56. - 58.	215	1.88
58. - 60.	165	1.67

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	335	2.93
600. - 800.	2610	22.81
800. - 1000.	316	2.76
1000. - 1200.	490	4.28
1200. - 1400.	614	5.37
1400. - 1600.	1001	8.75
1600. - 1800.	1252	10.94
1800. - 2000.	1852	16.19
2000. - 2200.	1803	15.76
2200. - 2400.	1149	10.04
2400. - 2600.	18	.16
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-67.
1973 MACK/CUMMINS NTC 290, 855 CID I6 TRACTOR, GCW 72000 LB., TRUCK U 4
RUN DURATION 23.87 MIN., IDLE SPEED 600 RPM, TEST WT. 50950 LB., 3/19/74 RUN 7

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1419.7712	619.1166	5.5243	12560	2470.0000	130.0000	2340.0000
FF	2	35.7279	35.8653	.6400	3140	116.9871	.4590	116.5281
SPD	3	19.0992	15.1733	.1354	12560	59.5605	.0000	59.5605

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1016	32.36
2	364	11.59
3	482	15.35
4	985	31.37
5	35	1.11
6	257	8.18
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	713	22.71
4. - 8.	588	18.73
8. - 12.	76	2.42
12. - 16.	78	2.48
16. - 20.	75	2.39
20. - 24.	73	2.32
24. - 28.	70	2.23
28. - 32.	84	2.68
32. - 36.	98	3.12
36. - 40.	117	3.73
40. - 44.	73	2.32
44. - 48.	72	2.29
48. - 52.	80	2.55
52. - 56.	50	1.59
56. - 60.	49	1.56
60. - 64.	55	1.75
64. - 68.	61	1.94
68. - 72.	45	1.43
72. - 76.	58	1.85
76. - 80.	56	1.78
80. - 84.	58	1.85
84. - 88.	69	2.20
88. - 92.	67	2.13
92. - 96.	54	1.72
96. - 100.	81	2.58
100. - 104.	77	2.45
104. - 108.	98	3.12
108. - 112.	55	1.75
112. - 116.	9	.29
116. - 120.	1	.03
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT LEVEL <	COUNT	PERCENT
0. - 2.	2854	22.72
2. - 4.	385	3.07
4. - 6.	244	1.94
6. - 8.	266	2.12
8. - 10.	262	2.09
10. - 12.	246	1.96
12. - 14.	368	2.93
14. - 16.	701	5.58
16. - 18.	640	5.10
18. - 20.	684	5.45
20. - 22.	416	3.31
22. - 24.	487	3.88
24. - 26.	530	4.22
26. - 28.	827	6.58
28. - 30.	1141	9.08
30. - 32.	640	5.10
32. - 34.	402	3.20
34. - 36.	177	1.41
36. - 38.	167	1.33
38. - 40.	64	.51
40. - 42.	16	.13
42. - 44.	25	.20
44. - 46.	52	.41
46. - 48.	87	.69
48. - 50.	112	.89
50. - 52.	225	1.79
52. - 54.	288	2.29
54. - 56.	183	1.30
56. - 58.	79	.63
58. - 60.	12	.10

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	3	.02
200. - 400.	39	.31
400. - 600.	1879	14.96
600. - 800.	1851	14.74
800. - 1000.	329	2.62
1000. - 1200.	627	4.99
1200. - 1400.	544	4.33
1400. - 1600.	786	6.26
1600. - 1800.	1706	13.58
1800. - 2000.	2161	17.21
2000. - 2200.	1750	13.93
2200. - 2400.	876	6.97
2400. - 2600.	9	.07
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-68.
1973 MACK/CUMMINS NTC 290, 855 CID 16 TRACTOR, GCW 72000 LB., TRUCK D 9
RUN DURATION 22.32 MIN., IDLE SPEED 600 RPM, TEST WT. 50980 LB., 3/19/74 RUN 8

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1442.7864	580.3450	5.3516	11760	2405.0000	300.0000	2105.0000
FF	2	34.7037	33.6451	.6205	2940	115.4499	.3589	115.1410
SPD	3	20.3703	14.4941	.1383	11760	60.5340	.0000	60.5340

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	904	30.75
2	221	7.52
3	969	32.96
4	603	20.51
5	101	3.44
6	141	4.80
7	1	.03

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	649	22.07
4. - 8.	460	15.65
8. - 12.	95	3.23
12. - 16.	97	3.30
16. - 20.	88	2.99
20. - 24.	77	2.62
24. - 28.	86	2.93
28. - 32.	107	3.64
32. - 36.	111	3.78
36. - 40.	99	3.37
40. - 44.	68	2.31
44. - 48.	77	2.62
48. - 52.	70	2.38
52. - 56.	75	2.55
56. - 60.	48	1.63
60. - 64.	57	1.94
64. - 68.	57	1.94
68. - 72.	44	1.50
72. - 76.	47	1.60
76. - 80.	55	1.87
80. - 84.	65	2.21
84. - 88.	71	2.41
88. - 92.	60	2.04
92. - 96.	68	2.31
96. - 100.	91	3.10
100. - 104.	63	2.14
104. - 108.	36	1.22
108. - 112.	15	.51
112. - 116.	4	.14
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2258	19.20
2. - 4.	272	2.31
4. - 6.	176	1.50
6. - 8.	269	2.29
8. - 10.	368	3.13
10. - 12.	308	2.62
12. - 14.	389	3.31
14. - 16.	474	4.03
16. - 18.	622	5.29
18. - 20.	678	5.77
20. - 22.	432	3.67
22. - 24.	454	3.86
24. - 26.	582	4.95
26. - 28.	753	6.40
28. - 30.	754	6.41
30. - 32.	848	7.21
32. - 34.	494	4.20
34. - 36.	232	1.97
36. - 38.	261	2.22
38. - 40.	90	.77
40. - 42.	55	.47
42. - 44.	41	.35
44. - 46.	53	.45
46. - 48.	89	.76
48. - 50.	125	1.06
50. - 52.	166	1.41
52. - 54.	272	2.31
54. - 56.	172	1.46
56. - 58.	52	.44
58. - 60.	18	.15

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	13	.11
400. - 600.	1232	10.48
600. - 800.	1759	14.96
800. - 1000.	329	2.80
1000. - 1200.	615	5.23
1200. - 1400.	884	7.52
1400. - 1600.	1026	8.72
1600. - 1800.	1492	12.69
1800. - 2000.	2180	18.54
2000. - 2200.	1579	13.43
2200. - 2400.	649	5.52
2400. - 2600.	2	.02
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-69.
1973 MACK/CUMMINS NTC 290, 855 CID I6 TRACTOR, GCW 72000 LB., TRUCK D 9
RUN DURATION 23.01 MIN., IDLE SPEED 600 RPM, TEST WT. 50480 LB., 3/19/74 RUN 9

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1407.1934	599.0956	5.3287	12640	2405.0000	.0000	2405.0000
FF	2	33.6378	33.5922	.5976	3160	115.2804	.6273	114.6530
SPD	3	18.9621	15.1204	.1345	12640	56.8170	.0000	56.8170

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1110	35.13
2	294	9.30
3	612	19.37
4	869	27.50
5	65	2.06
6	209	6.61
7	0	.00

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
. - 4.	672	21.27
4. - 8.	538	17.03
8. - 12.	85	2.69
12. - 16.	75	2.37
16. - 20.	114	3.61
20. - 24.	135	4.27
24. - 28.	175	5.54
28. - 32.	124	3.92
32. - 36.	101	3.20
36. - 40.	85	2.69
40. - 44.	86	2.72
44. - 48.	61	1.93
48. - 52.	55	1.74
52. - 56.	60	1.90
56. - 60.	51	1.61
60. - 64.	46	1.46
64. - 68.	54	1.87
68. - 72.	61	1.93
72. - 76.	62	1.96
76. - 80.	56	1.77
80. - 84.	43	1.36
84. - 88.	33	1.04
88. - 92.	52	1.65
92. - 96.	80	2.53
96. - 100.	77	2.44
100. - 104.	81	2.56
104. - 108.	58	1.84
108. - 112.	28	.89
112. - 116.	9	.28
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	2837	22.44
2. - 4.	291	2.30
4. - 6.	377	2.98
6. - 8.	357	2.82
8. - 10.	332	2.63
10. - 12.	453	3.58
12. - 14.	418	3.31
14. - 16.	616	4.87
16. - 18.	440	3.48
18. - 20.	578	4.57
20. - 22.	331	2.62
22. - 24.	441	3.49
24. - 26.	680	5.38
26. - 28.	667	5.28
28. - 30.	1082	8.56
30. - 32.	757	5.99
32. - 34.	367	2.90
34. - 36.	257	2.03
36. - 38.	210	1.66
38. - 40.	60	.47
40. - 42.	12	.09
42. - 44.	23	.18
44. - 46.	41	.32
46. - 48.	109	.86
48. - 50.	238	1.88
50. - 52.	370	2.93
52. - 54.	227	1.80
54. - 56.	61	.48
56. - 58.	8	.06
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	4	.03
200. - 400.	32	.25
400. - 600.	1819	14.39
600. - 800.	1779	14.07
800. - 1000.	481	3.81
1000. - 1200.	588	4.65
1200. - 1400.	614	4.86
1400. - 1600.	1015	8.03
1600. - 1800.	1706	13.50
1800. - 2000.	2564	20.28
2000. - 2200.	1315	10.40
2200. - 2400.	722	5.71
2400. - 2600.	1	.01
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

OPERATIONAL DATA
S.A.R.R. TRUCK D-10

1970 FORD 17,000-LB GVW VAN
WITH DETROIT DIESEL 4L-53 ENGINE

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TABLE C-70.
1970 FORD/DETROIT DIESEL 4L-53, 212 CID 8DA VAN, GVW 17000 LB., TRUCK D 10
RUN DURATION 23.16 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/26/74 RUN 1

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1248.0552	620.9753	5.6782	11960	2820.0000	210.0000	2610.0000
FF	2	16.2143	14.5449	.2660	2990	55.8245	.1646	55.6599
SPD	3	19.5892	13.8166	.1263	11960	56.0068	.0000	56.0068

GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT OF TIME PERCENT
1	608	20.33
2	382	12.78
3	635	21.24
4	1111	37.16
5	173	5.79
6	0	.00
7	2	.07

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	716	23.95
4. - 8.	565	18.90
8. - 12.	291	9.73
12. - 16.	283	9.46
16. - 20.	154	5.15
20. - 24.	144	4.82
24. - 28.	130	4.35
28. - 32.	109	3.65
32. - 36.	153	5.12
36. - 40.	145	4.85
40. - 44.	127	4.25
44. - 48.	107	3.58
48. - 52.	50	1.67
52. - 56.	16	.54
56. - 60.	0	.00
60. - 64.	0	.00
64. - 68.	0	.00
68. - 72.	0	.00
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2153	18.00
2. - 4.	336	2.81
4. - 6.	177	1.48
6. - 8.	253	2.12
8. - 10.	274	2.29
10. - 12.	394	3.29
12. - 14.	538	4.50
14. - 16.	428	3.58
16. - 18.	557	4.66
18. - 20.	652	5.45
20. - 22.	772	6.45
22. - 24.	732	6.12
24. - 26.	575	4.81
26. - 28.	1234	10.32
28. - 30.	814	6.81
30. - 32.	431	3.60
32. - 34.	348	2.91
34. - 36.	177	1.48
36. - 38.	25	.21
38. - 40.	26	.22
40. - 42.	67	.56
42. - 44.	111	.93
44. - 46.	84	.70
46. - 48.	172	1.44
48. - 50.	358	2.99
50. - 52.	232	1.94
52. - 54.	32	.27
54. - 56.	7	.06
56. - 58.	1	.01
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2284	19.10
400. - 600.	575	4.81
600. - 800.	341	2.85
800. - 1000.	615	5.14
1000. - 1200.	751	6.28
1200. - 1400.	2560	21.40
1400. - 1600.	1746	14.60
1600. - 1800.	762	6.37
1800. - 2000.	644	5.38
2000. - 2200.	601	5.03
2200. - 2400.	883	7.38
2400. - 2600.	179	1.50
2600. - 2800.	17	.14
2800. - 3000.	2	.02
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-71.

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D 10
RUN DURATION 22.16 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/26/74 RUN 2

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1289.9050	592.4692	5.5883	11240	2685.0000	225.0000	2460.0000
FF	2	18.2545	16.1387	.3044	2810	61.6423	.4366	61.2057
SPD	3	20.8194	13.9056	.1312	11240	56.0068	.0000	56.0068

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	636	22.63
2	306	10.89
3	567	20.18
4	1082	38.51
5	218	7.76
6	0	.00
7	1	.04

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	823	29.29
4. - 8.	273	9.72
8. - 12.	213	7.58
12. - 16.	215	7.65
16. - 20.	211	7.51
20. - 24.	153	5.44
24. - 28.	155	5.52
28. - 32.	141	5.02
32. - 36.	105	3.74
36. - 40.	99	3.52
40. - 44.	116	4.13
44. - 48.	129	4.59
48. - 52.	99	3.52
52. - 56.	56	1.99
56. - 60.	19	.68
60. - 64.	3	.11
64. - 68.	0	.00
68. - 72.	0	.00
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	1879	16.72
2. - 4.	196	1.74
4. - 6.	199	1.77
6. - 8.	225	2.00
8. - 10.	206	1.83
10. - 12.	296	2.63
12. - 14.	397	3.53
14. - 16.	353	3.14
16. - 18.	384	3.42
18. - 20.	790	7.03
20. - 22.	841	7.48
22. - 24.	646	5.75
24. - 26.	538	4.79
26. - 28.	830	7.38
28. - 30.	1236	11.00
30. - 32.	695	6.18
32. - 34.	185	1.65
34. - 36.	157	1.40
36. - 38.	95	.85
38. - 40.	36	.32
40. - 42.	33	.29
42. - 44.	43	.38
44. - 46.	85	.76
46. - 48.	200	1.78
48. - 50.	370	3.29
50. - 52.	270	2.40
52. - 54.	45	.40
54. - 56.	9	.08
56. - 58.	1	.01
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1768	15.73
400. - 600.	575	5.12
600. - 800.	218	1.94
800. - 1000.	485	4.31
1000. - 1200.	740	6.58
1200. - 1400.	2483	22.09
1400. - 1600.	2023	18.00
1600. - 1800.	873	7.77
1800. - 2000.	591	5.26
2000. - 2200.	449	3.99
2200. - 2400.	931	8.28
2400. - 2600.	99	.88
2600. - 2800.	5	.04
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-72.
1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D 10
RUN DURATION 24.31 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LM., 3/26/74 RUN 3

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1198.5896	633.1418	5.6658	12400	2815.0000	195.0000	2620.0000
FF	2	17.0404	16.1684	.2904	3100	62.1366	.5884	61.5485
SPD	3	18.8435	14.7455	.1324	12400	59.1851	.0000	59.1851

GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT OF TIME PERCENT
1	955	30.81
2	404	13.03
3	874	28.19
4	866	27.94
5	0	.00
6	0	.00
7	1	.03

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	979	31.58
4. - 8.	364	11.74
8. - 12.	214	6.90
12. - 16.	280	9.03
16. - 20.	231	7.45
20. - 24.	165	5.32
24. - 28.	126	4.06
28. - 32.	104	3.35
32. - 36.	95	3.06
36. - 40.	114	3.67
40. - 44.	124	4.00
44. - 48.	105	3.39
48. - 52.	86	2.77
52. - 56.	69	2.23
56. - 60.	38	1.23
60. - 64.	6	.19
64. - 68.	0	.00
68. - 72.	0	.00
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	2862	23.08
2. - 4.	253	2.04
4. - 6.	177	1.43
6. - 8.	210	1.69
8. - 10.	306	2.47
10. - 12.	399	3.22
12. - 14.	529	4.27
14. - 16.	505	4.07
16. - 18.	385	3.10
18. - 20.	554	4.47
20. - 22.	838	6.76
22. - 24.	673	5.43
24. - 26.	807	6.51
26. - 28.	870	7.02
28. - 30.	901	7.27
30. - 32.	512	4.13
32. - 34.	239	1.93
34. - 36.	220	1.77
36. - 38.	94	.76
38. - 40.	21	.17
40. - 42.	13	.10
42. - 44.	26	.21
44. - 46.	37	.30
46. - 48.	83	.67
48. - 50.	221	1.78
50. - 52.	307	2.48
52. - 54.	233	1.88
54. - 56.	100	.81
56. - 58.	21	.17
58. - 60.	4	.03

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	2643	21.31
400. - 600.	744	6.00
600. - 800.	284	2.29
800. - 1000.	652	5.26
1000. - 1200.	1142	9.21
1200. - 1400.	2180	17.58
1400. - 1600.	1856	14.97
1600. - 1800.	1013	8.17
1800. - 2000.	405	3.27
2000. - 2200.	357	2.88
2200. - 2400.	571	4.60
2400. - 2600.	534	4.31
2600. - 2800.	16	.13
2800. - 3000.	2	.02
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-73.
1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D 10
RUN DURATION 25.48 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/26/74 RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1169.2085	644.1523	5.6496	13000	2875.0000	250.0000	2625.0000
FF	2	15.2055	16.5599	.2905	3250	64.7049	.3458	64.3611
SPD	3	17.8083	14.2739	.1252	13000	57.9825	.0000	57.9825

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1050	32.31
2	302	9.29
3	656	20.25
4	1240	38.15
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
. - 4.	1414	43.51
4. - 8.	257	7.91
8. - 12.	211	6.49
12. - 16.	199	6.12
16. - 20.	168	5.17
20. - 24.	158	4.86
24. - 28.	141	4.34
28. - 32.	108	3.32
32. - 36.	111	.42
36. - 40.	93	2.86
40. - 44.	76	2.34
44. - 48.	60	1.85
48. - 52.	100	3.08
52. - 56.	104	3.20
56. - 60.	48	1.48
60. - 64.	1	.03
64. - 68.	1	.03
68. - 72.	0	.00
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	3249	24.99
2. - 4.	276	2.12
4. - 6.	313	2.41
6. - 8.	292	2.25
8. - 10.	236	1.82
10. - 12.	341	2.62
12. - 14.	463	3.56
14. - 16.	595	4.58
16. - 18.	488	3.75
18. - 20.	513	3.95
20. - 22.	682	5.25
22. - 24.	803	6.18
24. - 26.	978	7.52
26. - 28.	767	5.90
28. - 30.	880	6.77
30. - 32.	635	4.88
32. - 34.	304	2.34
34. - 36.	111	.85
36. - 38.	26	.20
38. - 40.	66	.51
40. - 42.	105	.81
42. - 44.	137	1.05
44. - 46.	49	.38
46. - 48.	142	1.09
48. - 50.	174	1.34
50. - 52.	158	1.22
52. - 54.	123	.95
54. - 56.	75	.58
56. - 58.	19	.15
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2842	21.86
400. - 600.	969	7.45
600. - 800.	344	2.65
800. - 1000.	811	6.24
1000. - 1200.	1446	11.12
1200. - 1400.	1997	15.36
1400. - 1600.	1437	11.05
1600. - 1800.	891	6.85
1800. - 2000.	619	4.76
2000. - 2200.	547	4.21
2200. - 2400.	638	4.91
2400. - 2600.	359	2.76
2600. - 2800.	89	.68
2800. - 3000.	11	.08
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-74.

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D 10
RUN DURATION 23.21 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/26/74 RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1332.2375	674.0551	6.2157	11760	2860.0000	225.0000	2635.0000
FF	2	17.4739	18.5099	.3414	2940	66.3147	.4074	65.9072
SPD	3	19.6724	13.6006	.1254	11760	53.8593	.0000	53.8593

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	848	28.84
2	316	10.75
3	867	29.49
4	906	30.82
5	0	.00
6	0	.00
7	3	.10

PERCENT OF TIME FF AT

LEVEL <	COUNT	PERCENT
. - 4.	1238	42.11
4. - 8.	203	6.90
8. - 12.	156	5.31
12. - 16.	157	5.34
16. - 20.	155	5.27
20. - 24.	134	4.56
24. - 28.	94	3.20
28. - 32.	96	3.27
32. - 36.	110	3.74
36. - 40.	68	2.99
40. - 44.	100	3.40
44. - 48.	94	3.20
48. - 52.	80	2.72
52. - 56.	108	3.67
56. - 60.	99	3.37
60. - 64.	25	.85
64. - 68.	3	.10
68. - 72.	0	.00
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	2104	17.89
2. - 4.	297	2.53
4. - 6.	255	2.17
6. - 8.	344	2.93
8. - 10.	236	2.01
10. - 12.	337	2.87
12. - 14.	355	3.02
14. - 16.	593	5.04
16. - 18.	486	4.13
18. - 20.	570	4.85
20. - 22.	586	4.98
22. - 24.	655	5.57
24. - 26.	923	7.85
26. - 28.	790	6.72
28. - 30.	731	6.22
30. - 32.	643	5.47
32. - 34.	511	4.35
34. - 36.	224	1.90
36. - 38.	79	.67
38. - 40.	91	.77
40. - 42.	48	.41
42. - 44.	93	.79
44. - 46.	249	2.12
46. - 48.	355	3.02
48. - 50.	159	1.35
50. - 52.	36	.31
52. - 54.	10	.09
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2037	17.32
400. - 600.	808	6.87
600. - 800.	384	3.27
800. - 1000.	343	2.92
1000. - 1200.	773	6.57
1200. - 1400.	1521	12.93
1400. - 1600.	1537	13.07
1600. - 1800.	1139	9.69
1800. - 2000.	937	7.97
2000. - 2200.	1080	9.18
2200. - 2400.	777	6.61
2400. - 2600.	220	1.87
2600. - 2800.	185	1.57
2800. - 3000.	19	.16
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-75.

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D 10
RUN DURATION 23.58 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/26/74 RUN 5

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1233.1289	642.4806	5.9699	11600	2875.0000	220.0000	2655.0000
FF	2	16.0384	17.2554	.3204	2900	62.4257	.4271	61.9986
SPD	3	19.0433	14.5172	.1348	11600	53.6016	.0000	53.6016

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	927	31.97
2	459	15.83
3	509	17.55
4	1003	34.59
5	0	.00
6	0	.00
7	2	.07

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
< . - 4.	1282	44.21
4. - 8.	235	8.10
8. - 12.	160	5.52
12. - 16.	117	4.03
16. - 20.	103	3.55
20. - 24.	123	4.24
24. - 28.	114	3.93
28. - 32.	141	4.86
32. - 36.	112	3.86
36. - 40.	81	2.79
40. - 44.	125	4.31
44. - 48.	98	3.38
48. - 52.	98	3.38
52. - 56.	83	2.86
56. - 60.	23	.79
60. - 64.	5	.17
64. - 68.	0	.00
68. - 72.	0	.00
72. - 76.	0	.00
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2627	22.65
2. - 4.	252	2.17
4. - 6.	205	1.77
6. - 8.	293	2.53
8. - 10.	298	2.57
10. - 12.	376	3.24
12. - 14.	431	3.72
14. - 16.	357	3.08
16. - 18.	468	4.03
18. - 20.	541	4.66
20. - 22.	460	3.97
22. - 24.	532	4.59
24. - 26.	676	5.83
26. - 28.	765	6.59
28. - 30.	754	6.50
30. - 32.	577	4.97
32. - 34.	448	3.86
34. - 36.	307	2.65
36. - 38.	121	1.04
38. - 40.	58	.50
40. - 42.	22	.19
42. - 44.	66	.57
44. - 46.	355	3.06
46. - 48.	319	2.75
48. - 50.	197	1.70
50. - 52.	79	.68
52. - 54.	16	.14
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	2355	20.30
400. - 600.	817	7.04
600. - 800.	249	2.15
800. - 1000.	479	4.13
1000. - 1200.	881	7.59
1200. - 1400.	1962	16.91
1400. - 1600.	1494	12.88
1600. - 1800.	1062	9.16
1800. - 2000.	559	4.82
2000. - 2200.	959	8.27
2200. - 2400.	543	4.68
2400. - 2600.	179	1.54
2600. - 2800.	46	.40
2800. - 3000.	15	.13
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-76.

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D-10
RUN DURATION 23.04 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/27/74 RUN 7

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1117.3406	612.0891	5.7632	11280	2795.0000	240.0000	2555.0000
FF	2	16.3080	14.0648	.3741	2820	75.3104	.2413	75.0691
SPD	3	18.7894	14.4810	.1363	11280	61.9650	.0000	61.9650

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	680	24.11
2	162	5.74
3	616	21.84
4	1357	48.12
5	2	.07
6	1	.04
7	1	.04

PERCENT OF TIME FF AT LEVEL <	COUNT	PERCENT
0. - 4.	1187	42.09
4. - 8.	350	12.41
8. - 12.	173	6.13
12. - 16.	173	6.13
16. - 20.	122	4.33
20. - 24.	114	4.04
24. - 28.	83	2.94
28. - 32.	82	2.91
32. - 36.	74	2.62
36. - 40.	73	2.59
40. - 44.	43	1.52
44. - 48.	43	1.52
48. - 52.	47	1.67
52. - 56.	47	1.67
56. - 60.	29	1.03
60. - 64.	35	1.24
64. - 68.	33	1.17
68. - 72.	55	1.95
72. - 76.	57	2.02
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME VS AT LEVEL <	COUNT	PERCENT
0. - 2.	2397	21.25
2. - 4.	213	1.89
4. - 6.	178	1.58
6. - 8.	237	2.10
8. - 10.	317	2.81
10. - 12.	347	3.08
12. - 14.	458	4.06
14. - 16.	527	4.67
16. - 18.	672	5.96
18. - 20.	515	4.57
20. - 22.	574	5.09
22. - 24.	698	6.19
24. - 26.	869	7.70
26. - 28.	790	7.00
28. - 30.	720	6.38
30. - 32.	450	3.99
32. - 34.	216	1.91
34. - 36.	169	1.50
36. - 38.	17	.15
38. - 40.	19	.17
40. - 42.	20	.18
42. - 44.	15	.13
44. - 46.	42	.37
46. - 48.	71	.63
48. - 50.	164	1.45
50. - 52.	158	1.40
52. - 54.	133	1.18
54. - 56.	146	1.29
56. - 58.	95	.84
58. - 60.	36	.32

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	2210	19.59
400. - 600.	786	6.97
600. - 800.	518	4.59
800. - 1000.	1153	10.22
1000. - 1200.	1737	15.40
1200. - 1400.	1831	16.23
1400. - 1600.	1032	9.15
1600. - 1800.	639	5.66
1800. - 2000.	359	3.18
2000. - 2200.	149	1.32
2200. - 2400.	279	2.47
2400. - 2600.	314	2.78
2600. - 2800.	273	2.42
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-77.

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D-10
RUN DURATION 23.46 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3/27/74 RUN 8

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1090.8770	547.6560	5.0077	11960	2655.0000	255.0000	2400.0000
FF	2	15.5313	17.9690	.3286	2990	75.9329	.1388	75.7941
SPD	3	18.7036	13.4798	.1233	11960	59.4150	.0000	59.4150

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	733	24.52
2	184	6.15
3	443	14.82
4	1622	54.25
5	7	.23
6	0	.00
7	1	.03

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
. - 4.	1347	45.05
4. - 8.	194	6.49
8. - 12.	192	6.42
12. - 16.	168	5.62
16. - 20.	141	4.72
20. - 24.	160	5.35
24. - 28.	124	4.15
28. - 32.	157	5.25
32. - 36.	93	3.11
36. - 40.	51	1.71
40. - 44.	61	2.04
44. - 48.	72	2.41
48. - 52.	74	2.47
52. - 56.	27	.90
56. - 60.	33	1.10
60. - 64.	20	.67
64. - 68.	11	.37
68. - 72.	41	1.37
72. - 76.	24	.80
76. - 80.	0	.00
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
. - 2.	2307	19.29
2. - 4.	243	2.03
4. - 6.	200	1.67
6. - 8.	271	2.27
8. - 10.	376	3.14
10. - 12.	247	2.07
12. - 14.	314	2.63
14. - 16.	543	4.54
16. - 18.	734	6.14
18. - 20.	821	6.86
20. - 22.	776	6.49
22. - 24.	1135	9.49
24. - 26.	1005	8.40
26. - 28.	885	7.40
28. - 30.	378	3.16
30. - 32.	382	3.19
32. - 34.	251	2.10
34. - 36.	102	.85
36. - 38.	26	.22
38. - 40.	40	.33
40. - 42.	108	.90
42. - 44.	105	.88
44. - 46.	71	.59
46. - 48.	97	.81
48. - 50.	137	1.15
50. - 52.	155	1.30
52. - 54.	135	1.13
54. - 56.	71	.59
56. - 58.	37	.31
58. - 60.	8	.07

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2164	18.09
400. - 600.	728	6.09
600. - 800.	497	4.16
800. - 1000.	1259	10.53
1000. - 1200.	2436	20.37
1200. - 1400.	2100	17.56
1400. - 1600.	1202	10.05
1600. - 1800.	441	3.69
1800. - 2000.	262	2.19
2000. - 2200.	227	1.90
2200. - 2400.	269	2.25
2400. - 2600.	334	2.79
2600. - 2800.	41	.34
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE C-78.
1970 FORD/DETROIT DIESEL 6L-53, 21C CID BUS VAN, GVW 17000 LB., TRUCK D-10
RUN DURATION 20.29 MIN., IDLE SPEED 420 RPM, TEST WT. 14430 LB., 3727/74 RUN 4

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1044.1069	586.5761	5.2009	12720	2530.0000	110.0000	2420.0000
FF	2	17.3654	19.9383	.3536	3180	77.7306	.1344	77.5962
SPD	3	18.2903	14.0606	.1297	12720	54.9100	.0000	54.9100

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	978	30.75
2	269	8.46
3	398	12.52
4	1496	47.04
5	1	.03
6	0	.00
7	0	.00

PERCENT OF TIME FF AT

LEVEL	COUNT	PERCENT
<		
0. - 4.	1490	46.86
4. - 8.	169	5.31
8. - 12.	184	5.79
12. - 16.	113	3.55
16. - 20.	137	4.31
20. - 24.	111	3.49
24. - 28.	105	3.30
28. - 32.	115	3.62
32. - 36.	97	3.05
36. - 40.	130	4.09
40. - 44.	99	3.11
44. - 48.	93	2.92
48. - 52.	65	2.04
52. - 56.	70	2.20
56. - 60.	54	1.70
60. - 64.	48	1.51
64. - 68.	37	1.16
68. - 72.	35	1.10
72. - 76.	24	.75
76. - 80.	4	.13
80. - 84.	0	.00
84. - 88.	0	.00
88. - 92.	0	.00
92. - 96.	0	.00
96. - 100.	0	.00
100. - 104.	0	.00
104. - 108.	0	.00
108. - 112.	0	.00
112. - 116.	0	.00
116. - 120.	0	.00
120. - 124.	0	.00
124. - 128.	0	.00
128. - 132.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
<		
0. - 2.	3140	24.69
2. - 4.	285	2.24
4. - 6.	278	2.19
6. - 8.	303	2.38
8. - 10.	330	2.59
10. - 12.	387	3.04
12. - 14.	416	3.27
14. - 16.	408	3.21
16. - 18.	358	2.81
18. - 20.	560	4.40
20. - 22.	678	5.33
22. - 24.	1042	8.19
24. - 26.	749	5.89
26. - 28.	577	4.54
28. - 30.	643	5.06
30. - 32.	578	4.53
32. - 34.	443	3.48
34. - 36.	190	1.49
36. - 38.	126	.99
38. - 40.	132	1.04
40. - 42.	79	.62
42. - 44.	113	.89
44. - 46.	103	.81
46. - 48.	243	1.91
48. - 50.	337	2.65
50. - 52.	166	1.31
52. - 54.	55	.43
54. - 56.	3	.02
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
<		
0. - 200.	4	.03
200. - 400.	2788	21.92
400. - 600.	994	7.81
600. - 800.	358	2.81
800. - 1000.	923	7.26
1000. - 1200.	1947	15.31
1200. - 1400.	1728	13.58
1400. - 1600.	1694	13.32
1600. - 1800.	743	5.84
1800. - 2000.	495	3.89
2000. - 2200.	345	2.71
2200. - 2400.	594	4.67
2400. - 2600.	107	.84
2600. - 2800.	0	.00
2800. - 3000.	0	.00
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

APPENDIX D

PERCENT OF TIME IN VARIOUS INCREMENTS OF VEHICLE SPEED, ENGINE SPEED, AND FUEL RATE FOR TEN-TRUCK FLEET

ENGINE SPEED, RPM
AS A FUNCTION OF TIME

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TABLE D-1

TRUCK D-1 VEHICLE SPEED AS FUNCTION OF TIME

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PROBLEM CARD
PROBLEM NUMBER          1AVNS       METHOD NUMBER                    0
NUMBER OF CASES             9       NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES        30       NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED  -0       INPUT TAPE NUMBER                5
          NUMBER OF VARIABLE FORMAT CARDS    1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)
```

VAR NO	mph Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
1	0-2	17.0667	3.2519	1.0840	9	22.3800	12.1900	10.2900
2	2-4	2.0167	.9631	.1544	9	2.8900	1.9500	1.3900
3	4-6	2.2900	.6594	.2198	9	3.3500	1.6300	1.7200
4	6-8	2.5633	.5547	.1849	9	3.5300	1.7800	1.7500
5	8-10	2.5911	.5847	.1949	9	3.2500	1.5200	1.7300
6	10-12	3.9522	.9904	.1968	9	3.9400	2.7700	1.2200
7	12-14	4.6578	.6789	.2263	9	5.7700	3.7600	2.0100
8	14-16	3.8944	.9032	.3011	9	5.3000	2.7800	2.5200
9	16-18	4.8122	.7987	.2662	9	5.8700	3.7500	2.1200
10	18-20	5.2156	.9681	.3227	9	6.9900	3.9800	3.0100
11	20-22	7.0244	1.7491	.5830	9	9.8100	5.0700	4.7400
12	22-24	8.9233	1.5392	.5131	9	10.7200	5.6000	5.1200
13	24-26	9.9244	3.1039	1.0345	9	15.5000	5.9500	10.0500
14	26-28	8.5789	3.7577	1.2526	9	13.8300	2.6900	11.1400
15	28-30	4.3356	2.0522	.6841	9	8.9000	.9200	7.9800
16	30-32	1.9022	1.2955	.4318	9	3.9100	.9300	2.9800
17	32-34	1.1611	.8059	.2686	9	2.0600	.2300	1.8300
18	34-36	.5900	.3018	.1006	9	1.2600	.2500	1.0100
19	36-38	.4844	.2305	.0768	9	1.0300	.2900	.7400
20	38-40	.6511	.4753	.1584	9	1.5200	.2500	1.2700
21	40-42	.6589	.5191	.1730	9	1.5700	.2700	1.3000
22	42-44	1.0922	.7000	.2333	9	2.9300	.2700	2.1600
23	44-46	1.8556	.6400	.2133	9	2.6900	.7500	1.9400
24	46-48	2.5178	.9625	.3208	9	4.0600	1.4300	2.6300
25	48-50	1.8911	1.1295	.3765	9	3.5000	.1100	3.3900
26	50-52	.8644	1.0450	.3483	9	2.7100	-0.0000	2.7100
27	52-54	.1311	.2809	.0936	9	.8600	-0.0000	.8600
28	54-56	.0033	.0100	.0033	9	.0300	-0.0000	.0300
29	56-58	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
30	58-60	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000

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TABLE D-2

1970 IH/CUMMINS V903. 903 CID V8. 56000 LB GCW TRACTOR. TK. D-2

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	2.	20.79	6.23	7	29.53	14.18
2. -	4.	3.50	1.37	7	5.67	2.15
4. -	6.	4.41	1.23	7	6.30	2.64
6. -	8.	4.25	.76	7	5.20	2.98
8. -	10.	4.01	1.19	7	6.16	2.23
10. -	12.	3.56	.64	7	4.63	2.84
12. -	14.	3.76	.80	7	4.92	2.74
14. -	16.	4.05	1.34	7	6.01	2.12
16. -	18.	4.20	.85	7	5.28	2.54
18. -	20.	4.52	.68	7	5.31	3.45
20. -	22.	3.75	.71	7	4.51	3.03
22. -	24.	4.04	.52	7	5.01	3.32
24. -	26.	5.30	1.24	7	6.92	3.18
26. -	28.	6.27	2.28	7	8.98	2.82
28. -	30.	6.03	2.71	7	8.45	1.98
30. -	32.	4.34	2.46	7	7.02	.72
32. -	34.	2.71	1.62	7	5.02	.62
34. -	36.	1.21	.69	7	2.40	.45
36. -	38.	.62	.29	7	1.00	.33
38. -	40.	.58	.21	7	.91	.36
40. -	42.	.70	.46	7	1.37	.19
42. -	44.	.81	.54	7	1.58	.26
44. -	46.	.81	.53	7	1.54	.31
46. -	48.	1.41	.82	7	2.35	.55
48. -	50.	1.55	1.26	7	4.16	.54
50. -	52.	1.29	.80	7	2.09	.55
52. -	54.	.88	.88	7	2.31	.16
54. -	56.	.46	.56	7	1.30	.00
56. -	58.	.16	.22	7	.63	.00
58. -	60.	.02	.02	7	.05	.00

TABLE D-3

1971 INTERNATIONAL DIESEL 6-71, 426 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-3

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
0. -	2.	16.22	5.16	6	24.21	8.69
2. -	4.	2.23	.37	6	2.61	1.66
4. -	6.	2.31	.34	6	2.75	1.88
6. -	8.	2.39	.57	6	3.10	1.67
8. -	10.	3.10	.54	6	3.76	2.33
10. -	12.	3.08	.34	6	3.39	2.58
12. -	14.	3.70	.88	6	5.15	2.70
14. -	16.	4.76	.63	6	5.89	4.01
16. -	18.	5.57	.87	6	6.39	3.98
18. -	20.	6.29	1.04	6	6.79	4.18
20. -	22.	6.74	1.62	6	8.50	4.04
22. -	24.	5.83	.96	6	7.32	4.36
24. -	26.	7.40	1.55	6	9.90	5.61
26. -	28.	8.37	2.07	6	11.63	5.32
28. -	30.	6.14	3.21	6	9.24	1.79
30. -	32.	3.33	1.81	6	6.67	1.64
32. -	34.	2.01	.40	6	2.73	1.59
34. -	36.	.89	.58	6	1.77	.29
36. -	38.	.65	.45	6	1.25	.11
38. -	40.	1.35	.78	6	2.29	.16
40. -	42.	1.23	.80	6	2.21	.17
42. -	44.	1.52	.83	6	2.53	.41
44. -	46.	1.34	.61	6	2.51	.83
46. -	48.	.91	.67	6	1.77	.19
48. -	50.	1.04	1.00	6	2.66	.00
50. -	52.	1.04	1.06	6	2.78	.00
52. -	54.	.49	.68	6	1.39	.00
54. -	56.	.05	.08	6	.19	.00
56. -	58.	.00	.00	6	.00	.00
58. -	60.	.00	.00	6	.00	.00

TABLE D-4

TRUCK D-4 VEHICLE SPEED AS FUNCTION OF TIME

PROBLEM CARD

PROBLEM NUMBER	4AVWS	METHOD NUMBER	0
NUMBER OF CASES	7	NUMBER OF SPECIAL VALUES	0
NUMBER OF VARIABLES	30	NUMBER OF TRANSGENERATIONS	0
NUMBER OF VARIABLES ADDED	-0	INPUT TAPE NUMBER	5
NUMBER OF VARIABLE FORMAT CARDS	1		

SPECIAL VALUES CARD

0.00000

VARIABLE FORMAT CARD(S)

(5X,10F7.2,5X)

VAR NO	mph Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
1	0-2	19.2029	3.3636	1.2713	7	24.1500	13.9100	10.2400
2	2-4	2.3514	.8472	.3202	7	3.4600	1.2900	2.1700
3	4-6	2.4271	.7790	.2944	7	3.5300	1.7400	1.7900
4	6-8	2.7257	.7928	.2996	7	4.1600	1.9000	2.2600
5	8-10	2.4357	.4838	.1829	7	3.3700	1.7500	1.6200
6	10-12	2.3643	.4280	.1618	7	3.0700	1.9900	1.0800
7	12-14	2.8014	.5724	.2164	7	3.5900	2.2100	1.3800
8	14-16	3.1829	.6047	.2286	7	4.0000	2.4000	1.6000
9	16-18	4.0186	.9373	.3543	7	5.1100	2.6600	2.4500
10	18-20	4.8286	.9594	.3626	7	6.1200	3.8100	2.3100
11	20-22	4.3386	.9233	.3489	7	5.9000	3.0500	2.8500
12	22-24	5.9043	1.6917	.6394	7	7.8600	4.1300	3.7300
13	24-26	7.1871	2.0995	.7936	7	9.7700	4.7900	4.9800
14	26-28	7.4429	1.7327	.6549	7	10.2300	4.8500	5.3800
15	28-30	7.4086	1.6502	.6237	7	10.3200	5.9600	4.3600
16	30-32	6.0214	2.4089	.9105	7	10.3500	3.2200	7.1300
17	32-34	3.5014	1.9949	.7540	7	5.7800	.3400	5.4400
18	34-36	1.3943	1.2817	.4844	7	3.0300	.1500	2.8800
19	36-38	.6386	.6116	.2312	7	1.7100	.1400	1.5700
20	38-40	.7971	.4174	.1577	7	1.2400	.1200	1.1700
21	40-42	.7314	.5625	.2126	7	1.9200	.2700	1.6500
22	42-44	1.0786	.7996	.3022	7	2.6800	.2400	2.4400
23	44-46	1.6757	1.1435	.4322	7	3.5700	.2500	3.3200
24	46-48	1.5471	.6850	.2589	7	2.4800	.6500	1.8300
25	48-50	1.6786	.6569	.2483	7	2.8100	1.0100	1.8000
26	50-52	1.0743	.9440	.3568	7	2.8700	.1900	2.6800
27	52-54	.7600	1.0301	.3893	7	2.2300	-0.0000	2.2300
28	54-56	.4429	.7937	.3000	7	1.9800	-0.0000	1.9800
29	56-58	.0386	.0857	.0324	7	.2300	-0.0000	.2300
30	58-60	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000

TABLE D-5

1974 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
. -	2.	18.90	2.88	8	21.78	14.57
2. -	4.	1.91	.40	8	2.38	1.05
4. -	6.	2.16	.30	8	2.76	1.78
6. -	8.	2.42	.48	8	3.28	1.85
8. -	10.	2.31	.47	8	3.22	1.77
10. -	12.	2.36	.73	8	3.53	1.28
12. -	14.	2.88	.58	8	3.45	1.82
14. -	16.	4.32	1.02	8	6.12	2.46
16. -	18.	4.76	.97	8	6.34	3.02
18. -	20.	5.40	1.36	8	7.45	3.63
20. -	22.	6.05	1.12	8	7.69	4.21
22. -	24.	6.72	1.67	8	9.53	4.87
24. -	26.	6.39	1.75	8	8.90	4.20
26. -	28.	7.08	1.66	8	10.56	5.28
28. -	30.	7.39	1.55	8	9.50	4.92
30. -	32.	4.36	1.37	8	6.61	2.55
32. -	34.	3.03	1.70	8	6.62	1.79
34. -	36.	1.22	.77	8	2.36	.21
36. -	38.	.80	.53	8	1.72	.18
38. -	40.	1.08	.85	8	2.19	.17
40. -	42.	1.32	.78	8	2.29	.16
42. -	44.	1.49	.88	8	2.66	.45
44. -	46.	1.87	.94	8	3.02	.43
46. -	48.	1.55	.63	8	2.32	.72
48. -	50.	.64	.49	8	1.29	.02
50. -	52.	.45	.52	8	1.39	.00
52. -	54.	.57	1.00	8	2.32	.00
54. -	56.	.39	.73	8	1.85	.00
56. -	58.	.16	.32	8	.88	.00
58. -	60.	.03	.09	8	.26	.00

TABLE D-6

1973 MACK/MACK 676S, 672 CID I6 TRACTOR, GCW 72000 LB., TRUCK D-6

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
. -	2.	19.05	4.01	7	26.60	13.96
2. -	4.	2.44	.62	7	4.61	1.48
4. -	6.	2.46	.79	7	4.00	1.65
6. -	8.	2.39	.59	7	3.30	1.48
8. -	10.	2.30	.65	7	3.12	1.28
10. -	12.	2.92	.61	7	3.70	2.01
12. -	14.	3.33	.47	7	3.79	2.66
14. -	16.	5.01	1.16	7	6.55	3.68
16. -	18.	4.23	.50	7	4.74	3.50
18. -	20.	3.94	.60	7	5.12	3.26
20. -	22.	5.85	1.32	7	7.26	3.41
22. -	24.	6.65	1.50	7	8.97	4.15
24. -	26.	6.76	1.45	7	9.33	4.83
26. -	28.	7.43	1.45	7	10.74	4.13
28. -	30.	5.48	1.69	7	8.95	3.80
30. -	32.	3.75	1.44	7	6.59	1.93
32. -	34.	3.37	1.48	7	5.33	.85
34. -	36.	2.27	.62	7	3.31	1.71
36. -	38.	1.34	.51	7	2.20	.80
38. -	40.	.78	.58	7	1.77	.20
40. -	42.	.81	.62	7	1.97	.12
42. -	44.	.62	.39	7	1.30	.10
44. -	46.	.49	.27	7	.93	.10
46. -	48.	.71	.51	7	1.41	.21
48. -	50.	.78	.67	7	2.22	.28
50. -	52.	.91	.53	7	1.71	.42
52. -	54.	1.64	1.14	7	3.26	.35
54. -	56.	1.34	.82	7	2.71	.65
56. -	58.	.44	.40	7	1.05	.00
58. -	60.	.24	.40	7	.71	.00

TABLE D-7

1973 MACK/DETROIT DIESEL AV-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	2.	19.66	4.22	8	26.56	14.87
2. -	4.	2.42	.30	8	2.86	1.99
4. -	6.	1.91	.32	8	2.35	1.47
6. -	8.	2.61	.49	8	3.45	1.80
8. -	10.	3.76	.91	8	5.05	2.29
10. -	12.	2.59	.48	8	3.52	1.99
12. -	14.	3.35	.76	8	4.51	2.31
14. -	16.	4.11	.65	8	4.90	3.10
16. -	18.	4.84	.70	8	5.82	3.72
18. -	20.	5.35	.75	8	6.54	4.30
20. -	22.	4.31	1.82	8	8.36	2.47
22. -	24.	4.73	1.55	8	6.77	2.47
24. -	26.	5.76	1.73	8	8.31	3.67
26. -	28.	7.07	1.30	8	8.72	5.12
28. -	30.	7.22	1.22	8	9.30	5.11
30. -	32.	4.61	.67	8	5.35	3.32
32. -	34.	3.39	1.48	8	6.71	1.77
34. -	36.	2.56	1.21	8	4.73	1.16
36. -	38.	.77	.28	8	1.22	.36
38. -	40.	.34	.40	8	1.31	.13
40. -	42.	.30	.30	8	1.03	.16
42. -	44.	.53	.38	8	1.24	.22
44. -	46.	1.11	.73	8	2.75	.56
46. -	48.	1.15	.46	8	1.65	.59
48. -	50.	1.38	.57	8	2.13	.62
50. -	52.	1.33	.51	8	1.99	.56
52. -	54.	1.31	.72	8	2.40	.24
54. -	56.	.88	.71	8	1.91	.01
56. -	58.	.51	.61	8	1.61	.00
58. -	60.	.11	.18	8	.45	.00

TABLE D-8

1970 MACK/MACK ENDT 673H. 672 CID I6 INACTOR. GCW 56000 LB.. TRUCK D-8

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	2.	17.65	2.17	9	21.12	14.23
2. -	4.	1.73	.61	9	3.18	1.02
4. -	6.	1.73	.49	9	2.75	1.16
6. -	8.	2.47	.56	9	3.43	1.47
8. -	10.	2.44	.40	9	3.18	1.99
10. -	12.	4.04	.52	9	4.56	2.85
12. -	14.	4.49	.80	9	5.98	3.69
14. -	16.	6.15	.89	9	7.63	4.87
16. -	18.	3.75	.93	9	4.64	1.68
18. -	20.	3.56	.84	9	4.69	2.29
20. -	22.	4.36	1.43	9	6.76	2.29
22. -	24.	7.63	1.13	9	9.60	6.15
24. -	26.	6.90	2.19	9	9.44	3.23
26. -	28.	6.81	3.04	9	12.19	2.45
28. -	30.	6.60	3.21	9	13.82	3.59
30. -	32.	5.82	3.34	9	12.84	2.16
32. -	34.	1.92	1.30	9	3.39	.00
34. -	36.	1.45	1.07	9	3.01	.21
36. -	38.	.75	.59	9	1.64	.00
38. -	40.	.48	.27	9	1.08	.17
40. -	42.	.57	.41	9	1.53	.24
42. -	44.	.50	.26	9	.95	.25
44. -	46.	.97	.79	9	2.93	.31
46. -	48.	2.88	.84	9	4.31	2.10
48. -	50.	3.11	1.03	9	4.45	1.34
50. -	52.	1.14	.69	9	1.91	.08
52. -	54.	.09	.08	9	.21	.00
54. -	56.	.00	.00	9	.00	.00
56. -	58.	.00	.00	9	.00	.00
58. -	60.	.00	.00	9	.00	.00

TABLE D-9
TRUCK D-9 VEHICLE SPEED AS FUNCTION OF TIME

```
PROBLEM CARD
PROBLEM NUMBER          9AVW3       METHOD NUMBER                    0
NUMBER OF CASES             8       NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES        30       NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED  =0       INPUT TAPE NUMBER                5
        NUMBER OF VARIABLE FORMAT CARDS    1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)
```

VAR NO	mph Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
1	0-2	19.9287	2.1268	.7519	8	22.7200	17.1900	5.5300
2	2-4	2.2975	.6162	.2179	8	3.2800	1.4600	1.8300
3	4-6	2.9012	.7966	.2816	8	3.7000	1.4700	2.2300
4	6-8	2.3987	.5419	.1916	8	3.3600	1.7600	1.6000
5	8-10	2.4887	.4892	.1729	8	3.1600	2.0200	1.1400
6	10-12	2.4312	.5158	.1824	8	3.5800	1.9600	1.6200
7	12-14	2.8912	.4168	.1474	8	3.3100	2.1700	1.1400
8	14-16	4.2800	.7181	.2828	8	5.5800	3.2400	2.3400
9	16-18	4.6787	.6943	.2455	8	5.2400	3.4800	1.8100
10	18-20	5.5225	.7886	.2788	8	6.7300	4.5700	2.1600
11	20-22	3.8375	.9470	.3348	8	5.1700	2.6200	2.5500
12	22-24	5.0000	1.3238	.4680	8	7.3600	3.4900	3.8700
13	24-26	5.6400	.7921	.2800	8	6.8400	4.2200	2.6200
14	26-28	5.6187	.6593	.2331	8	6.5800	4.9700	1.6100
15	28-30	7.1275	1.6855	.5959	8	9.0800	4.0700	5.0100
16	30-32	6.2275	.9768	.3454	8	7.2100	4.5400	2.6700
17	32-34	3.7112	.9207	.3255	8	5.3200	2.5100	2.8100
18	34-36	2.3987	.8042	.2843	8	3.9600	1.4100	2.5500
19	36-38	1.9850	.7437	.2629	8	3.3400	1.1500	2.2400
20	38-40	.4512	.1804	.0638	8	.7700	.2300	.5400
21	40-42	.1875	.1189	.0420	8	.4700	.0900	.3800
22	42-44	.3050	.2494	.0882	8	.8400	.1300	.7100
23	44-46	.5800	.3660	.1240	8	1.2400	.2400	1.0500
24	46-48	.9925	.9968	.3524	8	3.3400	.1400	3.2000
25	48-50	1.0737	.7079	.2503	8	2.3400	.3100	2.0300
26	50-52	1.3987	.7884	.2788	8	2.9300	.3500	2.5800
27	52-54	1.6025	.6376	.2254	8	2.3100	.3900	1.9200
28	54-56	1.8387	.6884	.2413	8	2.3200	.1500	2.1700
29	56-58	.9012	.7268	.2570	8	1.8400	.0200	1.8700
30	58-60	.4562	.4720	.1669	8	1.2700	0.0000	1.2700

TABLE D-10

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D-10

VARIABLE (WS)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	2.	20.95	3.09	9	24.99	16.72
2. -	4.	2.17	.33	9	2.81	1.74
4. -	6.	1.83	.35	9	2.41	1.43
6. -	8.	2.25	.35	9	2.93	1.69
8. -	10.	2.39	.45	9	3.14	1.82
10. -	12.	2.90	.40	9	3.29	2.07
12. -	14.	3.62	.60	9	4.50	2.63
14. -	16.	3.99	.75	9	5.04	3.08
16. -	18.	4.22	1.18	9	6.14	2.81
18. -	20.	5.14	1.10	9	7.03	3.95
20. -	22.	5.76	1.10	9	7.48	3.97
22. -	24.	6.39	1.51	9	9.49	4.59
24. -	26.	6.59	1.34	9	8.40	4.79
26. -	28.	6.99	1.53	9	10.32	4.54
28. -	30.	6.57	2.07	9	11.00	3.16
30. -	32.	4.55	.94	9	6.16	3.19
32. -	34.	2.73	.97	9	4.35	1.65
34. -	36.	1.54	.55	9	2.65	.85
36. -	38.	.57	.37	9	1.04	.15
38. -	40.	.45	.30	9	1.04	.17
40. -	42.	.45	.29	9	.90	.10
42. -	44.	.65	.34	9	1.05	.13
44. -	46.	1.01	.94	9	3.06	.30
46. -	48.	1.57	.88	9	3.02	.63
48. -	50.	1.97	.80	9	3.29	1.15
50. -	52.	1.45	.72	9	2.48	.31
52. -	54.	.72	.60	9	1.88	.09
54. -	56.	.38	.46	9	1.24	.00
56. -	58.	.17	.28	9	.84	.00
58. -	60.	.05	.11	9	.32	.00

VEHICLE SPEED, MPH
AS A FUNCTION OF TIME

TABLE D-11
TRUCK D-1 ENGINE SPEED AS FUNCTION OF TIME

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PROBLEM CARD
PROBLEM NUMBER          1AVRPM      METHOD NUMBER                    0
NUMBER OF CASES             4       NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES        30       NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED  -0       INPUT TAPE NUMBER                5
        NUMBER OF VARIABLE FORMAT CARDS    1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)
```

rpm inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-200	.0522	.1993	.0998	4	.4500	0.0000	.4500
200-400	.0099	.0101	.0039	4	.0300	0.0000	.0300
400-600	1.0099	1.9715	.6572	4	4.6000	0.0000	4.6000
600-800	2.0922	2.9698	.8216	4	6.5800	0.0000	6.5800
800-1000	14.1533	7.0936	2.3679	4	26.1200	6.9900	19.1300
1000-1200	6.9900	2.8158	.9386	4	11.9300	3.4000	7.5300
1200-1400	7.5333	1.1068	.3689	4	9.0100	6.0100	3.0000
1400-1600	10.9399	1.9993	.6698	4	13.9500	8.1200	5.8300
1600-1800	14.6999	4.9929	1.9810	4	23.5900	11.9100	12.1300
1800-2000	14.9656	3.7850	1.2617	4	20.9900	8.7100	11.2800
2000-2200	8.9278	2.7769	.9256	4	12.5100	3.8800	8.6300
2200-2400	8.2711	1.5019	.5005	4	10.5000	5.3700	5.1300
2400-2600	4.5667	2.0691	.6880	4	7.3000	1.4800	5.8200
2600-2800	1.9167	.6720	.2240	4	2.8300	.5400	2.2900
2800-3000	.3933	.2769	.0923	4	.8600	.0200	.8400
3000-3200	.0989	.0857	.0286	4	.2500	-0.0000	.2500
3200-3400	.0289	.0322	.0107	4	.0900	-0.0000	.0900
3400-3600	.0056	.0113	.0038	4	.0300	-0.0000	.0300
3600-3800	.0011	.0033	.0011	4	.0100	-0.0000	.0100
3800-4000	.0022	.0067	.0022	4	.0200	-0.0000	.0200
4000-4200	.0011	.0033	.0011	4	.0100	-0.0000	.0100
4200-4400	.0011	.0033	.0011	4	.0100	-0.0000	.0100
4400-4600	.0033	.0100	.0033	4	.0300	-0.0000	.0300
4600-4800	.0022	.0067	.0022	4	.0200	-0.0000	.0200
4800-5000	.0022	.0067	.0022	4	.0200	-0.0000	.0200
5000-5200	0.0000	0.0000	0.0000	4	-0.0000	-0.0000	0.0000
5200-5400	0.0000	0.0000	0.0000	4	-0.0000	-0.0000	0.0000
5400-5600	0.0000	0.0000	0.0000	4	-0.0000	-0.0000	0.0000
5600-5800	0.0000	0.0000	0.0000	4	-0.0000	-0.0000	0.0000
5800-6000	0.0000	0.0000	0.0000	4	-0.0000	-0.0000	0.0000

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TABLE D-12

1970 IH/CUMMINS V903, 903 CID V8, 58000 LB GCW TRACTOR, TR. D-2

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
. - 200.	.00	.00	7	.01	00
200. - 400.	.07	.05	7	.13	.02
400. - 600.	4.59	3.73	7	10.13	1.50
600. - 800.	19.74	2.11	7	22.84	16.26
800. - 1000.	4.89	.84	7	5.74	3.35
1000. - 1200.	5.82	1.19	7	7.45	4.10
1200. - 1400.	6.29	1.71	7	9.11	4.25
1400. - 1600.	8.09	2.14	7	11.52	5.89
1600. - 1800.	12.63	3.77	7	18.20	7.40
1800. - 2000.	15.83	1.91	7	17.92	12.82
2000. - 2200.	12.43	2.47	7	14.62	8.49
2200. - 2400.	6.03	2.54	7	9.70	2.96
2400. - 2600.	2.59	1.16	7	4.42	1.35
2600. - 2800.	.96	.83	7	1.99	.21
2800. - 3000.	.24	.23	7	.55	.00
3000. - 3200.	.00	.00	7	.00	.00
3200. - 3400.	.00	.00	7	.00	.00
3400. - 3600.	.00	.00	7	.00	.00
3600. - 3800.	.00	.00	7	.00	.00
3800. - 4000.	.00	.00	7	.00	.00
4000. - 4200.	.00	.00	7	.00	.00
4200. - 4400.	.00	.00	7	.00	.00
4400. - 4600.	.00	.00	7	.00	.00
4600. - 4800.	.00	.00	7	.00	.00
4800. - 5000.	.00	.00	7	.00	.00

TABLE D-13

1971 IH/DETROIT DIESEL 6-71, 426 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-3

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
<					
. - 200.	.01	.02	6	.05	.00
200. - 400.	.52	.33	6	.96	.18
400. - 600.	21.04	6.04	6	30.01	11.95
600. - 800.	4.08	1.55	6	6.95	2.62
800. - 1000.	6.55	3.26	6	13.12	4.69
1000. - 1200.	8.73	1.00	6	10.65	7.89
1200. - 1400.	15.17	3.13	6	20.88	12.16
1400. - 1600.	16.71	2.76	6	20.64	13.52
1600. - 1800.	11.44	2.43	6	14.68	8.08
1800. - 2000.	8.37	3.37	6	12.96	3.74
2000. - 2200.	4.53	2.74	6	9.48	1.57
2200. - 2400.	2.03	1.42	6	4.49	.57
2400. - 2600.	.31	.25	6	.75	.12
2600. - 2800.	.00	.00	6	.01	.00
2800. - 3000.	.00	.00	6	.00	.00
3000. - 3200.	.00	.00	6	.00	.00
3200. - 3400.	.00	.00	6	.00	.00
3400. - 3600.	.00	.00	6	.00	.00
3600. - 3800.	.00	.00	6	.00	.00
3800. - 4000.	.00	.00	6	.00	.00
4000. - 4200.	.00	.00	6	.00	.00
4200. - 4400.	.00	.00	6	.00	.00
4400. - 4600.	.00	.00	6	.00	.00
4600. - 4800.	.00	.00	6	.00	.00
4800. - 5000.	.00	.00	6	.00	.00

TABLE D-14
TRUCK D-4 ENGINE SPEED AS FUNCTION OF TIME

PROBLEM CARD
PROBLEM NUMBER 9AVRPM METHOD NUMBER 0
NUMBER OF CASES 7 NUMBER OF SPECIAL VALUES 0
NUMBER OF VARIABLES 30 NUMBER OF TRANSGENERATIONS 0
NUMBER OF VARIABLES ADDED -0 INPUT TAPE NUMBER 5
NUMBER OF VARIABLE FORMAT CARDS 1

SPECIAL VALUES CARD
0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)

rpm inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-200	.0093	.0079	.0030	7	.0200	0.0000	.0200
200-400	.1000	.1130	.0427	7	.2600	0.0000	.2600
400-600	2.5971	1.2102	.4574	7	4.5700	.9800	3.5900
600-800	23.3957	3.0805	1.1643	7	27.8800	18.8000	9.0800
800-1000	3.7371	1.0163	.3841	7	5.2700	2.9200	2.3500
1000-1200	4.5071	.5898	.2227	7	5.2900	3.7100	1.5300
1200-1400	5.3743	1.2579	.4752	7	7.3800	4.1100	3.2700
1400-1600	8.5614	2.6009	.9831	7	13.0600	6.0200	7.0400
1600-1800	14.3371	2.5687	.9709	7	17.8500	10.7000	7.1500
1800-2000	14.8571	2.6010	.9831	7	19.9000	13.3600	6.5400
2000-2200	15.3943	4.6066	1.7411	7	16.2300	2.3200	13.9100
2200-2400	7.7686	1.2998	.4912	7	10.3600	6.8700	3.4900
2400-2600	1.9619	.9696	.1756	7	2.3400	.9400	1.3500
2600-2800	.0019	.0038	.0019	7	.0100	-0.0000	.0100
2800-3000	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
3000-3200	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
3200-3400	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
3400-3600	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
3600-3800	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
3800-4000	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
4000-4200	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
4200-4400	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
4400-4600	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
4600-4800	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
4800-5000	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
5000-5200	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
5200-5400	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
5400-5600	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
5600-5800	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
5800-6000	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000

TABLE D-15

1974 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
. - < 200.	.02	.05	8	.14	.00
200. - 400.	.08	.09	8	.25	.00
400. - 600.	7.84	1.78	8	9.89	4.37
600. - 800.	19.39	4.22	8	24.12	12.86
800. - 1000.	7.58	2.49	8	11.61	3.87
1000. - 1200.	12.80	4.04	8	17.73	4.49
1200. - 1400.	16.12	3.46	8	21.48	11.59
1400. - 1600.	9.88	1.94	8	13.45	7.39
1600. - 1800.	7.97	1.55	8	10.54	5.74
1800. - 2000.	8.71	2.77	8	14.67	6.40
2000. - 2200.	6.24	1.91	8	9.48	3.41
2200. - 2400.	1.95	1.28	8	3.76	.23
2400. - 2600.	.86	.74	8	2.12	.00
2600. - 2800.	.50	.51	8	1.39	.00
2800. - 3000.	.07	.10	8	.27	.00
3000. - 3200.	.00	.00	8	.00	.00
3200. - 3400.	.00	.00	8	.00	.00
3400. - 3600.	.00	.00	8	.00	.00
3600. - 3800.	.00	.00	8	.00	.00
3800. - 4000.	.00	.00	8	.00	.00
4000. - 4200.	.00	.00	8	.00	.00
4200. - 4400.	.00	.00	8	.00	.00
4400. - 4600.	.00	.00	8	.00	.00
4600. - 4800.	.00	.00	8	.00	.00
4800. - 5000.	.00	.00	8	.00	.00

TABLE D-16

1973 MACK/MACK 676B, 672 CID I6 TRACTOR, GCW 72000 LB., TRUCK D-6

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
<					
. - 200.	.00	.00	7	.00	.00
200. - 400.	.04	.05	7	.12	.00
400. - 600.	2.04	1.78	7	4.87	.28
600. - 800.	24.70	4.08	7	31.32	19.32
800. - 1000.	5.67	1.27	7	7.97	4.42
1000. - 1200.	10.22	2.38	7	14.55	7.73
1200. - 1400.	15.89	2.01	7	18.07	12.81
1400. - 1600.	16.41	3.07	7	20.93	11.93
1600. - 1800.	13.33	2.76	7	17.93	10.01
1800. - 2000.	5.99	1.45	7	7.92	3.82
2000. - 2200.	3.26	.82	7	4.12	2.17
2200. - 2400.	1.68	.70	7	2.90	.71
2400. - 2600.	.57	.62	7	1.69	.00
2600. - 2800.	.00	.00	7	.00	.00
2800. - 3000.	.00	.00	7	.00	.00
3000. - 3200.	.00	.00	7	.00	.00
3200. - 3400.	.00	.00	7	.00	.00
3400. - 3600.	.00	.00	7	.00	.00
3600. - 3800.	.00	.00	7	.00	.00
3800. - 4000.	.00	.00	7	.00	.00
4000. - 4200.	.00	.00	7	.00	.00
4200. - 4400.	.00	.00	7	.00	.00
4400. - 4600.	.00	.00	7	.00	.00
4600. - 4800.	.00	.00	7	.00	.00
4800. - 5000.	.00	.00	7	.00	.00

TABLE D-17

1973 MACK/DETROIT DIESEL 8V-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
0. - 200.	.01	.03	8	.08	.00
200. - 400.	1.18	.98	8	3.07	.22
400. - 600.	23.60	4.39	8	30.77	19.08
600. - 800.	2.13	.43	8	2.58	1.49
800. - 1000.	4.02	1.01	8	5.43	2.76
1000. - 1200.	6.72	1.41	8	8.54	5.01
1200. - 1400.	8.84	2.01	8	11.96	5.56
1400. - 1600.	13.09	2.44	8	15.94	8.85
1600. - 1800.	17.31	3.54	8	20.23	10.07
1800. - 2000.	14.37	2.76	8	19.49	10.30
2000. - 2200.	8.62	3.10	8	14.63	5.88
2200. - 2400.	.12	.10	8	.30	.00
2400. - 2600.	.00	.01	8	.04	.00
2600. - 2800.	.00	.00	8	.00	.00
2800. - 3000.	.00	.00	8	.00	.00
3000. - 3200.	.00	.00	8	.00	.00
3200. - 3400.	.00	.00	8	.00	.00
3400. - 3600.	.00	.00	8	.00	.00
3600. - 3800.	.00	.00	8	.00	.00
3800. - 4000.	.00	.00	8	.00	.00
4000. - 4200.	.00	.00	8	.00	.00
4200. - 4400.	.00	.00	8	.00	.00
4400. - 4600.	.00	.00	8	.00	.00
4600. - 4800.	.00	.00	8	.00	.00
4800. - 5000.	.00	.00	8	.00	.00

TABLE D-18

1970 MACK/MACK ENDT 673B, 672 CID 16 TRACTOR, GCW 58000 LB., TRUCK D-8

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
<					
. - 200.	.02	.06	9	.19	.00
200. - 400.	7.09	5.27	9	11.68	.00
400. - 600.	14.40	5.80	9	25.83	9.01
600. - 800.	2.57	.48	9	3.40	1.74
800. - 1000.	3.58	1.45	9	7.01	1.83
1000. - 1200.	6.31	2.22	9	9.52	3.44
1200. - 1400.	10.32	3.74	9	17.25	4.30
1400. - 1600.	17.12	5.09	9	27.04	10.31
1600. - 1800.	17.75	3.51	9	22.36	13.26
1800. - 2000.	10.22	5.84	9	26.39	8.91
2000. - 2200.	4.54	5.36	9	12.47	.02
2200. - 2400.	.02	.05	9	.15	.00
2400. - 2600.	.00	.00	9	.00	.00
2600. - 2800.	.00	.00	9	.00	.00
2800. - 3000.	.00	.00	9	.00	.00
3000. - 3200.	.00	.00	9	.00	.00
3200. - 3400.	.00	.00	9	.00	.00
3400. - 3600.	.00	.00	9	.00	.00
3600. - 3800.	.00	.00	9	.00	.00
3800. - 4000.	.00	.00	9	.00	.00
4000. - 4200.	.00	.00	9	.00	.00
4200. - 4400.	.00	.00	9	.00	.00
4400. - 4600.	.00	.00	9	.00	.00
4600. - 4800.	.00	.00	9	.00	.00
4800. - 5000.	.00	.00	9	.00	.00

TABLE D-IV

ENGINE SPEED AS FUNCTION OF TIME

PROBLEM CARD
PROBLEM NUMBER SAVOPH METHOD NUMBER 0
NUMBER OF CARDS 0 NUMBER OF SPECIAL VALUES 0
NUMBER OF VARIABLES 20 NUMBER OF TRANSGENERATIONS 0
NUMBER OF VARIABLES ADDED -0 INPUT TAPE NUMBER 5
NUMBER OF VARIABLE FORMAT CARDS 1

SPECIAL VALUES CARD
0.00000

VARIAB. FORMAT CARD(S)
(5X,10F9.0,9X)

rpm inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-200	.0063	.0119	.0042	8	.0300	0.0000	.0300
200-400	.1138	.1116	.0395	8	.3100	0.0000	.3100
400-600	10.9900	3.8593	1.3647	8	14.9600	2.9400	12.0200
600-800	15.6750	3.6218	1.2810	8	22.8900	10.7600	12.1300
800-1000	2.9062	.6119	.2163	8	3.8100	2.0300	1.7800
1000-1200	4.7275	.5677	.2007	8	5.7200	3.9600	1.7600
1200-1400	6.0562	1.2499	.4419	8	8.0900	4.3300	3.7600
1400-1600	9.0837	2.1881	.7737	8	12.1000	6.2900	5.8100
1600-1800	12.6150	1.7387	.6146	8	14.7200	9.2800	5.4400
1800-2000	17.3962	1.5846	.5602	8	20.2800	15.6100	4.6700
2000-2200	10.7287	2.3334	.8252	8	15.7800	9.0800	6.7000
2200-2400	7.9975	1.9966	.7059	8	10.8700	5.5200	5.3500
2400-2600	.0462	.0501	.0177	8	.1600	.0100	.1500
2600-2800	0.0000	0.0000	0.0000	8	0.0000	-0.0000	0.0000
2800-3000	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
3000-3200	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
3200-3400	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
3400-3600	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
3600-3800	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
3800-4000	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
4000-4200	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
4200-4400	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
4400-4600	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
4600-4800	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
4800-5000	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
5000-5200	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
5200-5400	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
5400-5600	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
5600-5800	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
5800-6000	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000

TABLE D-20

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D-10

VARIABLE (RPM)

INTERVAL	MEAN	S. DEV.	SAMPLE	MAX	MIN
. - 200.	.00	.01	9	.03	.00
200. - 400.	19.47	2.13	9	21.92	15.73
400. - 600.	6.46	1.03	9	7.81	4.81
600. - 800.	2.97	.90	9	4.59	1.94
800. - 1000.	6.22	2.66	9	10.53	2.92
1000. - 1200.	10.94	5.02	9	20.37	6.28
1200. - 1400.	17.07	3.11	9	22.09	12.93
1400. - 1600.	13.01	2.71	9	18.00	9.15
1600. - 1800.	7.02	1.88	9	9.69	3.69
1800. - 2000.	4.52	1.68	9	7.97	2.19
2000. - 2200.	4.39	2.72	9	9.18	1.32
2200. - 2400.	5.09	2.04	9	8.28	2.25
2400. - 2600.	2.14	1.12	9	4.31	.84
2600. - 2800.	.64	.83	9	2.42	.00
2800. - 3000.	.05	.06	9	.16	.00
3000. - 3200.	.00	.00	9	.00	.00
3200. - 3400.	.00	.00	9	.00	.00
3400. - 3600.	.00	.00	9	.00	.00
3600. - 3800.	.00	.00	9	.00	.00
3800. - 4000.	.00	.00	9	.00	.00
4000. - 4200.	.00	.00	9	.00	.00
4200. - 4400.	.00	.00	9	.00	.00
4400. - 4600.	.00	.00	9	.00	.00
4600. - 4800.	.00	.00	9	.00	.00
4800. - 5000.	.00	.00	9	.00	.00

ENGINE FUEL RATE, LBS/MIN
AS A FUNCTION OF TIME

TABLE D-21
TRUCK D-1 FUEL RATE AS FUNCTION OF TIME

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PROBLEM CARD
PROBLEM NUMBER          1AVFF       METHOD NUMBER                    0
NUMBER OF CASES             9       NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES        30       NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED  -0       INPUT TAPE NUMBER                5
        NUMBER OF VARIABLE FORMAT CARDS    1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)
```

Fuel Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-4	23.2944	4.4191	1.4730	9	32.2500	19.3700	12.8800
4-8	17.2667	5.0281	1.6760	9	23.9200	9.9400	13.9800
8-12	9.1622	1.7726	.5909	9	12.0600	6.9700	5.0900
12-16	9.0333	1.3490	.4497	9	11.0800	7.5400	3.5400
16-20	7.7644	1.5206	.5069	9	10.1500	4.6100	5.5400
20-24	6.4611	1.8454	.6151	9	9.7000	3.1300	6.5700
24-28	4.7922	1.1534	.3845	9	6.0800	2.7800	3.3000
28-32	4.3189	1.0586	.3529	9	5.8800	3.2100	2.6700
32-36	3.4078	1.5542	.5181	9	5.9100	1.0300	4.8800
36-40	2.8600	.8232	.2744	9	3.8600	1.7400	2.1200
40-44	2.4422	.7924	.2641	9	3.6100	1.1200	2.4900
44-48	1.7966	.7906	.2635	9	3.4700	1.0400	2.4300
48-52	1.5344	.4527	.1509	9	2.4400	.7900	1.6500
52-56	1.2133	.4188	.1396	9	2.0600	.6500	1.4100
56-60	1.3144	.5914	.1971	9	2.0600	.3500	1.7100
60-64	1.1111	.6410	.2137	9	1.8600	0.0000	1.8600
64-68	.9711	.6478	.2159	9	2.3000	.3300	1.9700
68-72	.6544	.7415	.2472	9	2.2300	-0.0000	2.2300
72-76	.2033	.3691	.1230	9	1.0900	-0.0000	1.0900
76-80	.1911	.4097	.1366	9	1.1700	-0.0000	1.1700
80-84	.1733	.3695	.1232	9	1.0500	-0.0000	1.0500
84-88	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
88-92	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
92-96	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
96-100	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
100-104	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
104-108	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
108-112	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000
112-116	.0367	.1100	.0367	9	.3300	-0.0000	.3300
116-120	0.0000	0.0000	0.0000	9	0.0000	-0.0000	0.0000

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TABLE D-22

1970 IH/CUMMINS V903, 903 CID V8, 58000 LB GCW TRACTOR, TK. D-2

VARIABLE (FF)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	4.	17.72	2.72	7	22.62	15.15
4. -	8.	21.00	.75	7	21.69	19.86
8. -	12.	4.17	.77	7	5.11	3.03
12. -	16.	4.19	1.21	7	5.82	2.87
16. -	20.	3.98	.95	7	5.56	2.97
20. -	24.	4.26	1.52	7	6.73	2.41
24. -	28.	3.59	.90	7	4.95	2.17
28. -	32.	3.44	.38	7	3.85	2.77
32. -	36.	3.34	.58	7	4.05	2.41
36. -	40.	3.42	.63	7	4.32	2.59
40. -	44.	2.75	.83	7	3.89	1.56
44. -	48.	2.52	.59	7	3.16	1.58
48. -	52.	2.13	.46	7	2.62	1.50
52. -	56.	2.12	.35	7	2.62	1.84
56. -	60.	1.69	.36	7	2.28	1.21
60. -	64.	1.53	.34	7	1.99	1.03
64. -	68.	1.24	.14	7	1.49	1.11
68. -	72.	1.31	.37	7	1.99	.89
72. -	76.	1.34	.44	7	1.94	.90
76. -	80.	1.20	.29	7	1.43	.80
80. -	84.	1.07	.40	7	1.56	.63
84. -	88.	1.06	.29	7	1.52	.76
88. -	92.	1.09	.33	7	1.47	.54
92. -	96.	1.02	.43	7	1.67	.61
96. -	100.	.82	.18	7	1.17	.61
100. -	104.	.91	.24	7	1.29	.51
104. -	108.	.91	.31	7	1.38	.47
108. -	112.	.79	.31	7	1.19	.24
112. -	116.	.99	.52	7	1.63	.18
116. -	120.	1.15	.68	7	2.16	.07
120. -	124.	.75	.53	7	1.33	.04
124. -	128.	.78	.77	7	2.31	.07
128. -	132.	.51	.48	7	1.40	.00

TABLE D-23

1971 IH/DETHOIT DIESEL 6-71, 426 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-3

VARIABLE (FF)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
. -	4.	28.36	4.19	6	34.19	23.16
4. -	8.	10.05	2.98	6	13.37	6.41
8. -	12.	5.46	.98	6	6.96	4.38
12. -	16.	7.55	1.60	6	9.64	5.56
16. -	20.	6.55	1.53	6	8.42	4.51
20. -	24.	5.08	1.08	6	6.83	3.90
24. -	28.	4.28	.78	6	5.36	3.41
28. -	32.	3.45	.85	6	5.10	2.76
32. -	36.	2.75	.61	6	3.79	2.14
36. -	40.	2.37	.42	6	2.87	1.67
40. -	44.	2.36	.73	6	3.74	1.72
44. -	48.	2.14	.34	6	2.69	1.62
48. -	52.	2.52	.93	6	3.74	1.42
52. -	56.	2.37	.39	6	2.87	1.80
56. -	60.	2.77	.84	6	3.88	1.43
60. -	64.	2.17	.60	6	3.01	1.40
64. -	68.	1.94	.46	6	2.75	1.44
68. -	72.	1.45	.29	6	1.85	1.12
72. -	76.	1.68	.68	6	2.72	1.00
76. -	80.	1.45	.74	6	2.48	.56
80. -	84.	1.61	.97	6	2.87	.56
84. -	88.	1.13	.73	6	1.82	.17
88. -	92.	.54	.89	6	2.28	.00
92. -	96.	.00	.00	6	.00	.00
96. -	100.	.00	.00	6	.00	.00
100. -	104.	.00	.00	6	.00	.00
104. -	108.	.00	.00	6	.00	.00
108. -	112.	.00	.00	6	.00	.00
112. -	116.	.00	.00	6	.00	.00
116. -	120.	.00	.00	6	.00	.00
120. -	124.	.00	.00	6	.00	.00
124. -	128.	.00	.00	6	.00	.00
128. -	132.	.00	.00	6	.00	.00

TABLE D-24
TRUCK D-4 FUEL RATE AS FUNCTION OF TIME

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PROBLEM CARD
PROBLEM NUMBER          4AVFF      METHOD NUMBER                    0
NUMBER OF CASES             7      NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES        40      NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED  -0      INPUT TAPE NUMBER                5
        NUMBER OF VARIABLE FORMAT CARDS    1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)
```

Fuel Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-4	31.1800	5.6195	2.1240	7	36.3900	20.0300	16.3600
4-8	6.7671	3.5238	1.3319	7	14.4300	4.3200	10.1100
8-12	5.0043	1.4946	.5649	7	6.7000	3.0500	3.6500
12-16	4.6100	.9390	.3549	7	5.6500	3.1600	2.4900
16-20	4.9500	1.2246	.4629	7	6.1600	2.6700	3.4900
20-24	4.7257	.8872	.3353	7	6.1100	3.7200	2.3900
24-28	4.4243	.7545	.2852	7	5.8200	3.5200	2.3000
28-32	3.9286	.6338	.2395	7	4.9100	3.2000	1.7100
32-36	2.9614	.3573	.1350	7	3.4600	2.5300	.9300
36-40	2.3843	.2723	.1029	7	2.7300	1.9700	.7600
40-44	2.2986	.5310	.2007	7	3.3600	1.7200	1.6400
44-48	2.1714	.5851	.2211	7	2.8300	1.2000	1.6300
48-52	2.4886	.7075	.2674	7	3.3000	1.6800	1.6200
52-56	2.0957	.5435	.2054	7	3.0600	1.5500	1.5100
56-60	2.0386	.5042	.1906	7	2.6700	1.3400	1.3300
60-64	1.9857	.4374	.1653	7	2.7900	1.4100	1.3800
64-68	1.6900	.6458	.2441	7	2.3800	.7000	1.6800
68-72	1.8329	.6220	.2351	7	2.6600	1.1300	1.5300
72-76	1.6814	.6350	.2400	7	2.2500	.7000	1.5500
76-80	1.7186	.5975	.2258	7	2.2500	.7400	1.5100
80-84	2.1057	.5631	.2128	7	2.9900	1.4000	1.5900
84-88	1.8586	.6442	.2435	7	3.0900	1.1000	1.9900
88-92	1.7086	.6580	.2487	7	2.5300	.9400	1.5900
92-96	1.6443	.6579	.2487	7	2.3600	.5300	1.8300
96-100	.6671	.9598	.3628	7	2.5900	-0.0000	2.5900
100-104	.6471	.7797	.2947	7	1.7200	-0.0000	1.7200
104-108	.3243	.5231	.1977	7	1.4200	-0.0000	1.4200
108-112	.1043	.1809	.0684	7	.4200	-0.0000	.4200
112-116	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
116-120	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
120-124	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
124-128	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
128-132	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
132-136	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
136-140	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
140-144	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
144-148	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
148-152	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
152-156	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000
156-160	0.0000	0.0000	0.0000	7	-0.0000	-0.0000	0.0000

TABLE D-25

1974 IH/CAT 1160, 636 CID V8 TRACTOR, GCW 58000 LB., TRUCK D-5

VARIABLE (FF)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
0. -	4.	35.47	4.87	8	39.65	25.35
4. -	8.	6.14	1.58	8	9.85	4.72
8. -	12.	4.62	.68	8	5.33	3.28
12. -	16.	4.49	.35	8	5.02	4.04
16. -	20.	4.64	1.09	8	6.74	3.48
20. -	24.	4.36	.97	8	6.04	2.81
24. -	28.	3.81	.74	8	4.67	2.31
28. -	32.	3.46	.93	8	5.24	2.41
32. -	36.	2.98	.87	8	4.87	2.28
36. -	40.	3.18	.79	8	4.87	2.31
40. -	44.	3.06	.72	8	4.38	2.05
44. -	48.	4.24	1.66	8	7.55	1.90
48. -	52.	3.52	1.36	8	6.07	2.23
52. -	56.	2.99	.38	8	3.33	2.40
56. -	60.	2.90	1.32	8	4.91	.97
60. -	64.	3.39	.93	8	4.72	2.21
64. -	68.	3.48	1.76	8	5.95	1.08
68. -	72.	1.85	1.20	8	3.74	.16
72. -	76.	.79	.51	8	1.68	.00
76. -	80.	.39	.34	8	.92	.00
80. -	84.	.19	.34	8	1.03	.00
84. -	88.	.04	.08	8	.22	.00
88. -	92.	.01	.02	8	.07	.00
92. -	96.	.00	.00	8	.00	.00
96. -	100.	.00	.00	8	.00	.00
100. -	104.	.00	.00	8	.00	.00
104. -	108.	.00	.00	8	.00	.00
108. -	112.	.00	.00	8	.00	.00
112. -	116.	.00	.00	8	.00	.00
116. -	120.	.00	.00	8	.00	.00
120. -	124.	.00	.00	8	.00	.00
124. -	128.	.00	.00	8	.00	.00
128. -	132.	.00	.00	8	.00	.00

TABLE D-26
TRUCK D-6 FUEL RATE AS FUNCTION OF TIME

```
PROBLEM CARD
PROBLEM NUMBER            GAVFF        METHOD NUMBER                    0
NUMBER OF CASES                5       NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES           40       NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED     -0       INPUT TAPE NUMBER                5
        NUMBER OF VARIABLE FORMAT CARDS     1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X)
```

Fuel Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-4	38.3660	1.6739	.7489	5	40.7300	36.0000	4.7300
4-8	7.0500	3.0265	1.3535	5	12.3300	4.7700	7.5600
8-12	4.6480	.2882	.1289	5	4.8400	4.2100	.6800
12-16	4.3700	.6560	.2934	5	5.1400	3.7000	1.4400
16-20	4.4400	.8126	.3634	5	5.4800	3.2200	2.2600
20-24	3.5280	.7258	.3246	5	4.3800	2.5300	1.8500
24-28	2.4600	.5056	.2261	5	3.5600	2.2700	1.2900
28-32	2.8420	.6467	.3116	5	3.8500	2.1600	1.6900
32-36	2.6160	.7331	.3278	5	3.1700	1.4800	1.6900
36-40	2.0800	.2562	.1146	5	2.2600	1.6400	.6200
40-44	2.1020	.2668	.1193	5	2.4000	1.8500	.5500
44-48	2.0280	.5032	.2250	5	2.8100	1.4100	1.4000
48-52	2.0240	.3044	.1361	5	2.5500	1.7800	.7700
52-56	1.5120	.4453	.1992	5	1.9400	.8500	1.1400
56-60	1.4040	.4202	.1879	5	1.4800	.4800	1.0000
60-64	1.5760	.4595	.2055	5	2.2200	.4500	1.2700
64-68	1.2720	.5460	.2666	5	2.2200	.7100	1.5100
68-72	1.1380	.1712	.0766	5	1.3200	.4000	.4200
72-76	1.0660	.3164	.1417	5	1.5500	.7400	.8100
76-80	1.4060	.5136	.2297	5	2.1200	.4000	1.2200
80-84	1.7640	.6055	.3602	5	2.8200	.4000	1.4200
84-88	1.5800	.5655	.2529	5	2.3700	1.0600	1.3100
88-92	1.8520	.5832	.2608	5	2.5200	1.2400	1.2300
92-96	2.4500	.5418	.2423	5	2.9600	1.5500	1.4100
96-100	2.2460	.7630	.3412	5	3.2400	1.4100	1.8300
100-104	1.0840	.4577	.4283	5	2.7600	.3300	2.4300
104-108	.3560	.6168	.2759	5	1.4400	-0.0000	1.4400
108-112	.0800	.1789	.0800	5	.4000	-0.0000	.4000
112-116	.0060	.0134	.0060	5	.0300	-0.0000	.0300
116-120	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
120-124	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.000
124-128	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
128-132	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
132-136	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
136-140	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
140-144	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
144-148	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
148-152	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
152-156	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000
156-160	0.0000	0.0000	0.0000	5	-0.0000	-0.0000	0.0000

TABLE D-27.

1973 MACK/DETROIT DIESEL 8V-71, 568 CID V8 TRACTOR, GCW 72000 LB., TRUCK D-7

VARIABLE (FF)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	4.	31.94	4.41	8	40.99	28.14
4. -	8.	8.49	2.32	8	11.46	4.74
8. -	12.	3.22	.68	8	4.62	2.63
12. -	16.	3.22	.52	8	3.76	2.41
16. -	20.	3.36	.82	8	4.93	2.45
20. -	24.	2.87	.88	8	4.90	2.14
24. -	28.	2.96	.51	8	3.56	2.32
28. -	32.	2.99	.89	8	4.61	1.86
32. -	36.	2.92	.49	8	3.57	2.17
36. -	40.	2.49	.51	8	3.24	1.62
40. -	44.	2.57	.50	8	3.56	1.89
44. -	48.	2.14	.72	8	3.80	1.58
48. -	52.	1.96	.37	8	2.72	1.55
52. -	56.	1.57	.32	8	1.86	1.02
56. -	60.	1.64	.45	8	2.34	.99
60. -	64.	1.53	.28	8	2.08	1.16
64. -	68.	1.48	.54	8	2.29	.94
68. -	72.	1.38	.31	8	1.80	1.02
72. -	76.	1.38	.40	8	2.03	.68
76. -	80.	1.49	.33	8	1.95	1.05
80. -	84.	1.41	.27	8	1.86	.98
84. -	88.	1.52	.40	8	2.20	1.11
88. -	92.	1.54	.24	8	1.86	1.13
92. -	96.	1.57	.32	8	1.98	1.02
96. -	100.	2.14	.46	8	2.76	1.34
100. -	104.	3.33	.46	8	4.12	2.76
104. -	108.	3.35	.62	8	3.99	2.03
108. -	112.	2.42	1.09	8	4.02	.83
112. -	116.	.64	.33	8	1.32	.15
116. -	120.	.06	.11	8	.33	.00
120. -	124.	.12	.34	8	.96	.00
124. -	128.	.20	.58	8	1.63	.00
128. -	132.	.05	.14	8	.40	.00

TABLE D-28
TRUCK D-8 FUEL RATE AS FUNCTION OF TIME

```
PROBLEM CARD
PROBLEM NUMBER          SAVFP       METHOD NUMBER                    0
NUMBER OF CASES             9       NUMBER OF SPECIAL VALUES         0
NUMBER OF VARIABLES        40       NUMBER OF TRANSGENERATIONS       0
NUMBER OF VARIABLES ADDED  -0       INPUT TAPE NUMBER                5
         NUMBER OF VARIABLE FORMAT CARDS    1

SPECIAL VALUES CARD
     0.00000

VARIABLE FORMAT CARD(S)
(5X,10F9.4,8,5X)
```

Fuel Inc.	MEAN	S.D.	S.E. Of MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-4	32.8756	6.6850	2.2283	9	39.8700	19.3600	18.5100
4-8	6.7167	3.4755	1.1585	9	15.1000	4.2200	10.8800
8-12	4.5767	.7420	.2473	9	5.6100	3.6100	2.0000
12-16	5.8886	1.3276	.4425	9	7.3600	3.5300	3.8300
16-20	4.6300	.9049	.3016	9	6.7200	3.7500	2.9700
20-24	4.7300	.8924	.2975	9	6.0700	3.5700	2.5000
24-28	4.8011	1.0229	.3410	9	5.7800	2.9900	2.7900
28-32	4.0567	1.0465	.3488	9	5.8500	2.4800	3.3700
32-36	3.5344	.7815	.2605	9	5.2900	2.3700	2.9200
36-40	2.9144	1.0425	.3475	9	4.5500	1.2400	3.3100
40-44	2.8933	.8089	.2696	9	3.7200	1.3500	2.3700
44-48	2.6878	.5436	.1812	9	3.4200	1.8000	1.6200
48-52	2.4700	.4607	.1536	9	2.9400	1.7800	1.1600
52-56	2.5844	.3628	.1209	9	3.3100	1.9600	1.3500
56-60	2.3589	.3948	.1316	9	2.8000	1.5500	1.2500
60-64	2.2200	.5941	.1980	9	2.8500	1.1500	1.7000
64-68	1.8233	.4555	.1518	9	2.4700	1.1400	1.3300
68-72	1.5666	.3721	.1240	9	2.1700	1.1600	1.0200
72-76	1.8711	.4170	.1390	9	2.5500	1.2500	1.3000
76-80	1.5333	.5157	.1719	9	2.5900	1.0200	1.5200
80-84	1.8022	.7795	.2598	9	3.4800	.7600	2.6900
84-88	1.5344	.5665	.1888	9	2.2000	.6500	1.5500
88-92	1.0922	.5301	.1767	9	2.1600	.2600	1.9000
92-96	.4022	.3683	.1228	9	1.2100	-0.0000	1.2100
96-100	.1678	.3493	.1198	9	.9700	-0.0000	.9700
100-104	.0556	.1667	.0556	9	.5000	-0.0000	.5000
104-108	.0111	.0333	.0111	9	.1000	-0.0000	.1000
108-112	.0078	.0233	.0078	9	.0700	-0.0000	.0700
112-116	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
116-120	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
120-124	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
124-128	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
128-132	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
132-136	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
136-140	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
140-144	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
144-148	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
148-152	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
152-156	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000
156-160	0.0000	0.0000	0.0000	9	-0.0000	-0.0000	0.0000

TABLE D-29
TRUCK D-9 FUEL RATE AS FUNCTION OF TIME

PROBLEM CARD
PROBLEM NUMBER 9AVFF METHOD NUMBER 0
NUMBER OF CASES 8 NUMBER OF SPECIAL VALUES 0
NUMBER OF VARIABLES 50 NUMBER OF TRANSGENERATIONS 0
NUMBER OF VARIABLES ADDED -0 INPUT TAPE NUMBER 5
NUMBER OF VARIABLE FORMAT CARDS 1

SPECIAL VALUES CARD
0.00000

VARIABLE FORMAT CARD(S)
(5X,10F7.2,5X),

Fuel Inc.	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
0-4	21.1537	4.6993	1.6615	8	29.2800	12.6900	16.6900
4-8	16.9837	3.1502	1.1138	8	21.9300	12.8200	9.9100
8-12	3.1875	.5965	.2109	8	4.3000	2.9200	1.8800
12-16	2.9575	.6511	.1998	8	3.8200	2.3700	1.4500
16-20	3.1575	.5799	.2050	8	4.0400	2.3900	1.6500
20-24	3.1762	.6256	.2212	8	4.2700	2.3200	1.9500
24-28	3.1187	1.0949	.3871	8	5.5400	2.0600	3.4800
28-32	3.1337	.5763	.2037	8	3.9200	2.3600	1.5600
32-36	3.0600	.4810	.1701	8	3.7800	2.3900	1.3900
36-40	2.9900	.4705	.1692	8	3.7300	2.4300	1.3000
40-44	2.6800	.3203	.1132	8	3.2100	2.3100	.9000
44-48	2.4912	.4729	.1670	8	2.9000	1.6800	1.2200
48-52	2.0637	.2990	.1057	8	2.5500	1.7400	.8100
52-56	2.0712	.3627	.1282	8	2.6100	1.5900	1.0200
56-60	1.5212	.2309	.0816	8	1.9200	1.1200	.8000
60-64	1.7012	.2319	.0820	8	2.0000	1.3900	.6100
64-68	1.6950	.2372	.0839	8	1.9400	1.3700	.5700
68-72	1.5750	.3145	.1112	8	2.1400	1.2200	.9200
72-76	1.5625	.3353	.1185	8	1.9600	.9100	1.0500
76-80	1.5375	.2483	.0878	8	1.8700	1.0800	.7900
80-84	1.5312	.3782	.1337	8	2.2100	1.0500	1.1600
84-88	1.6162	.4876	.1724	8	2.4100	1.0400	1.3700
88-92	1.6750	.4203	.1486	8	2.1300	1.0100	1.1200
92-96	1.9087	.4928	.1742	8	2.5300	1.1800	1.3500
96-100	2.4587	.6127	.2166	8	3.1000	1.1800	1.9200
100-104	3.0287	1.0007	.3538	8	4.9610	1.9300	3.0300
104-108	3.0900	1.3727	.4853	8	5.3800	1.2200	4.1600
108-112	2.1125	1.2029	.4251	8	3.6800	.5100	3.1700
112-116	.9525	1.0372	.3667	8	3.2800	.1400	3.1400
116-120	.2825	.4291	.1517	8	1.2800	-0.0000	1.2800
120-124	.0687	.1256	.0444	8	.3700	-0.0000	.3700
124-128	.0038	.0106	.0038	8	.0300	-0.0000	.0300
128-132	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
132-136	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
136-140	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
140-144	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
144-148	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
148-152	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
152-156	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000
156-160	0.0000	0.0000	0.0000	8	-0.0000	-0.0000	0.0000

TABLE D-30

1970 FORD/DETROIT DIESEL 4L-53, 212 CID BOX VAN, GVW 17000 LB., TRUCK D-10

VARIABLE (FF)

INTERVAL		MEAN	S. DEV.	SAMPLE	MAX	MIN
	<					
. -	4.	38.74	8.22	9	46.86	23.95
4. -	8.	9.72	4.17	9	18.90	5.31
8. -	12.	6.65	1.35	9	9.73	5.31
12. -	16.	6.33	2.04	9	9.46	3.55
16. -	20.	5.27	1.36	9	7.51	3.55
20. -	24.	4.68	.66	9	5.44	3.49
24. -	28.	3.98	.78	9	5.52	2.94
28. -	32.	3.92	.88	9	5.25	2.91
32. -	36.	3.52	.72	9	5.12	2.62
36. -	40.	3.23	.92	9	4.85	1.71
40. -	44.	3.23	1.05	9	4.31	1.52
44. -	48.	2.98	.94	9	4.59	1.52
48. -	52.	2.59	.69	9	3.52	1.67
52. -	56.	2.14	1.02	9	3.67	.54
56. -	60.	1.26	.93	9	3.37	.00
60. -	64.	.53	.56	9	1.51	.00
64. -	68.	.31	.50	9	1.17	.00
68. -	72.	.49	.77	9	1.95	.00
72. -	76.	.40	.70	9	2.02	.00
76. -	80.	.01	.04	9	.13	.00
80. -	84.	.00	.00	9	.00	.00
84. -	88.	.00	.00	9	.00	.00
88. -	92.	.00	.00	9	.00	.00
92. -	96.	.00	.00	9	.00	.00
96. -	100.	.00	.00	9	.00	.00
100. -	104.	.00	.00	9	.00	.00
104. -	108.	.00	.00	9	.00	.00
108. -	112.	.00	.00	9	.00	.00
112. -	116.	.00	.00	9	.00	.00
116. -	120.	.00	.00	9	.00	.00
120. -	124.	.00	.00	9	.00	.00
124. -	128.	.00	.00	9	.00	.00
128. -	132.	.00	.00	9	.00	.00

APPENDIX E

ROAD ROUTE VEHICLE SPEED, ENGINE SPEED AND FUEL RATE HISTOGRAMS FOR TEN DIESEL TRUCKS

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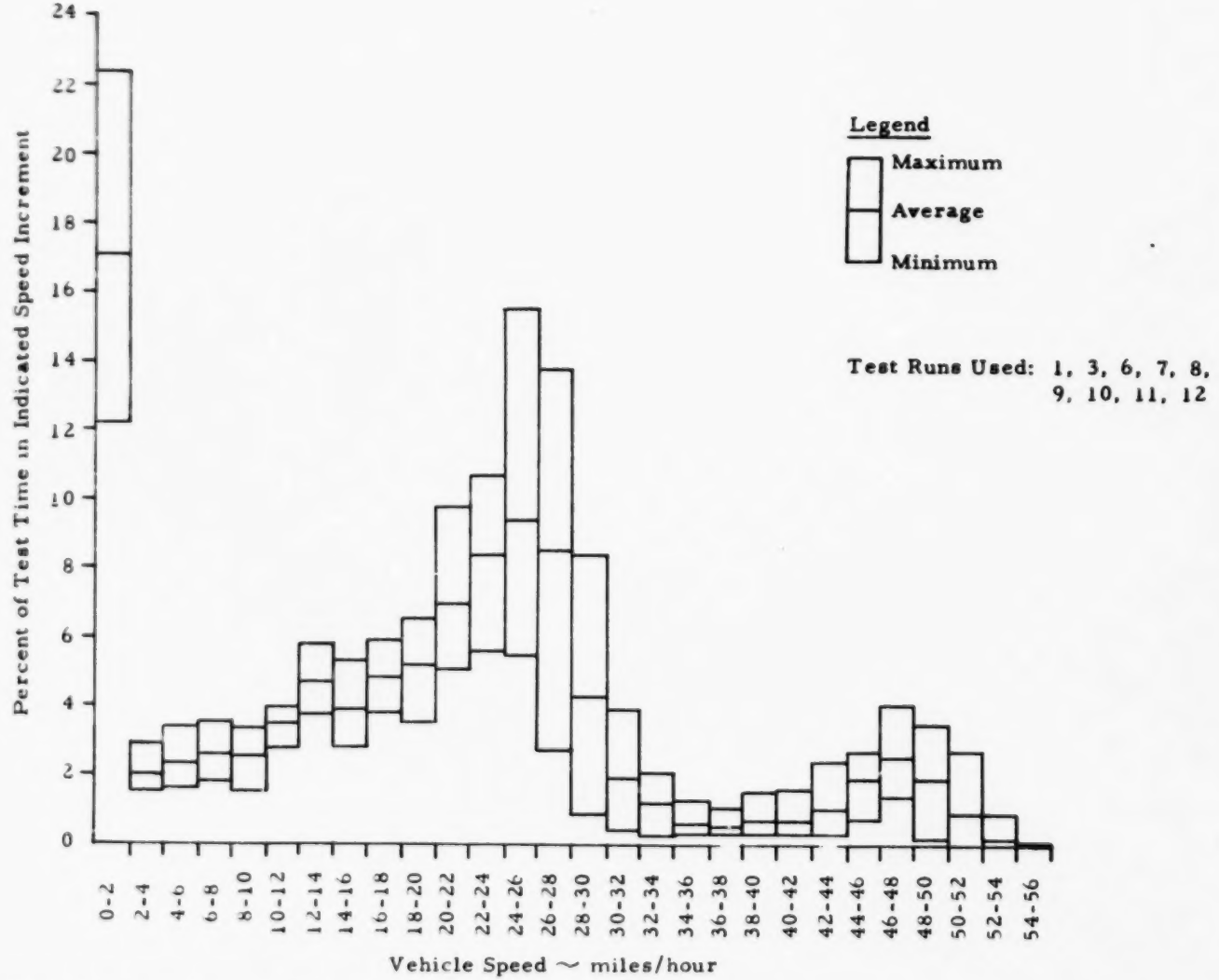

FIGURE E-1. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-1

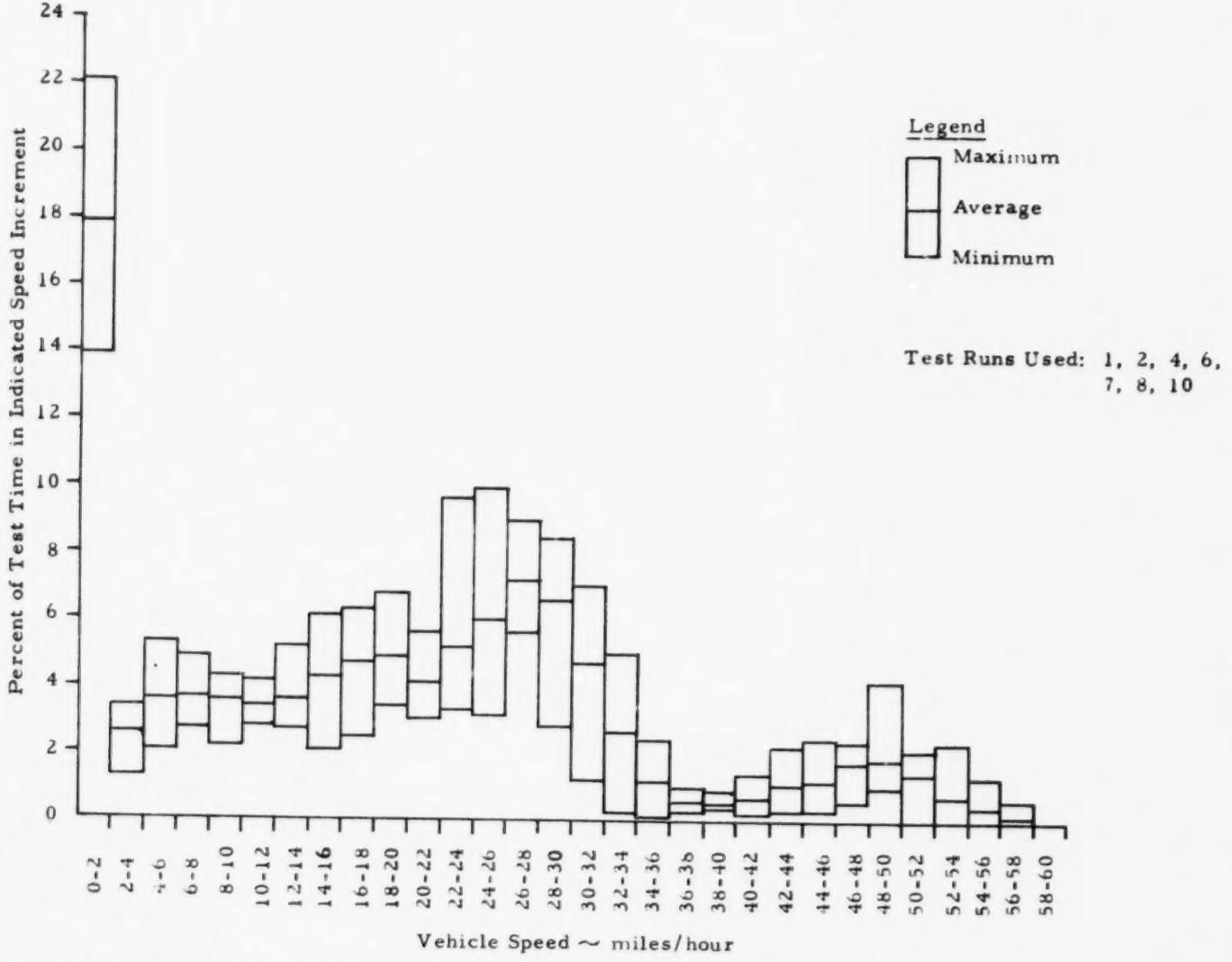

FIGURE E-2. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-2

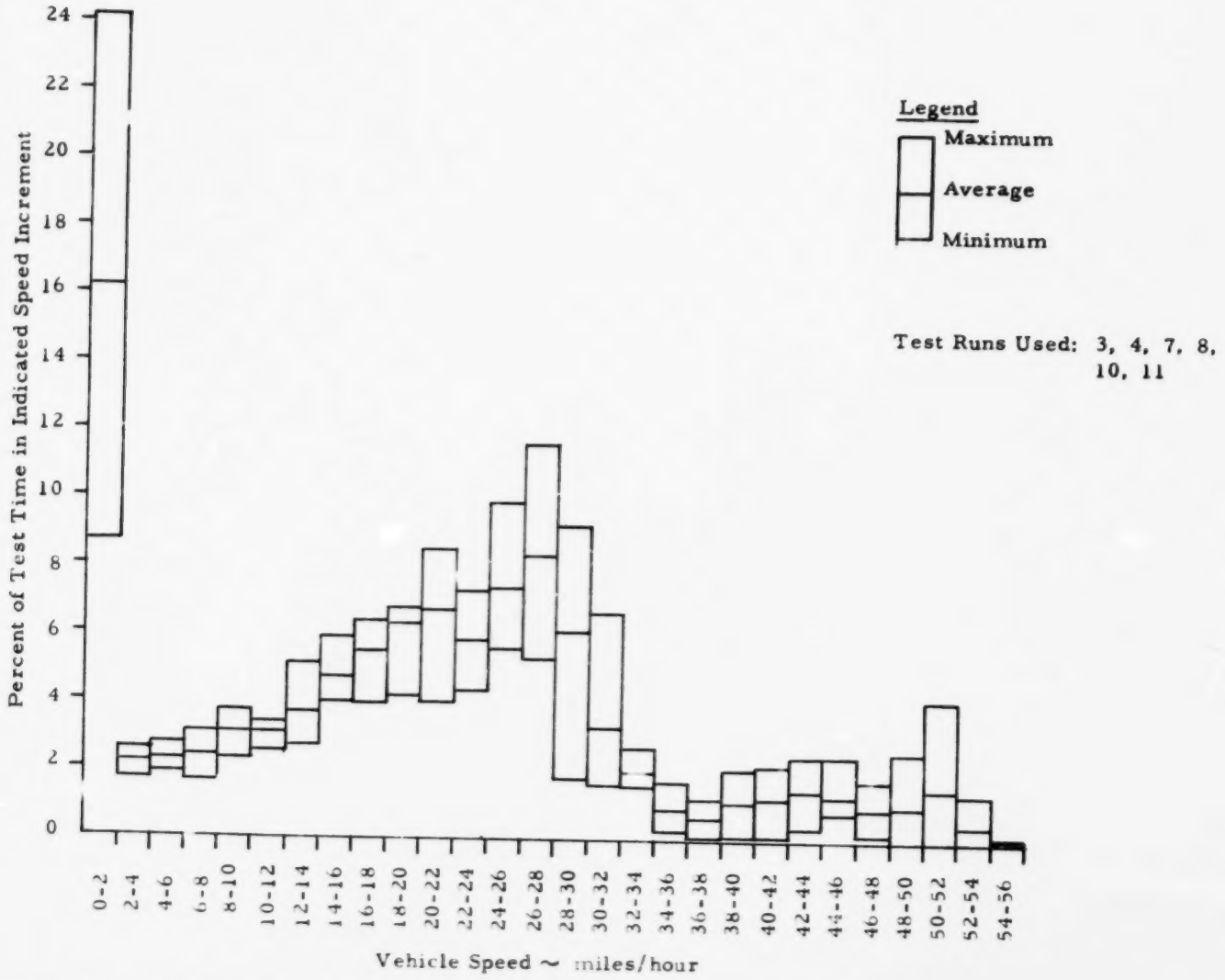

FIGURE E-3. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-3

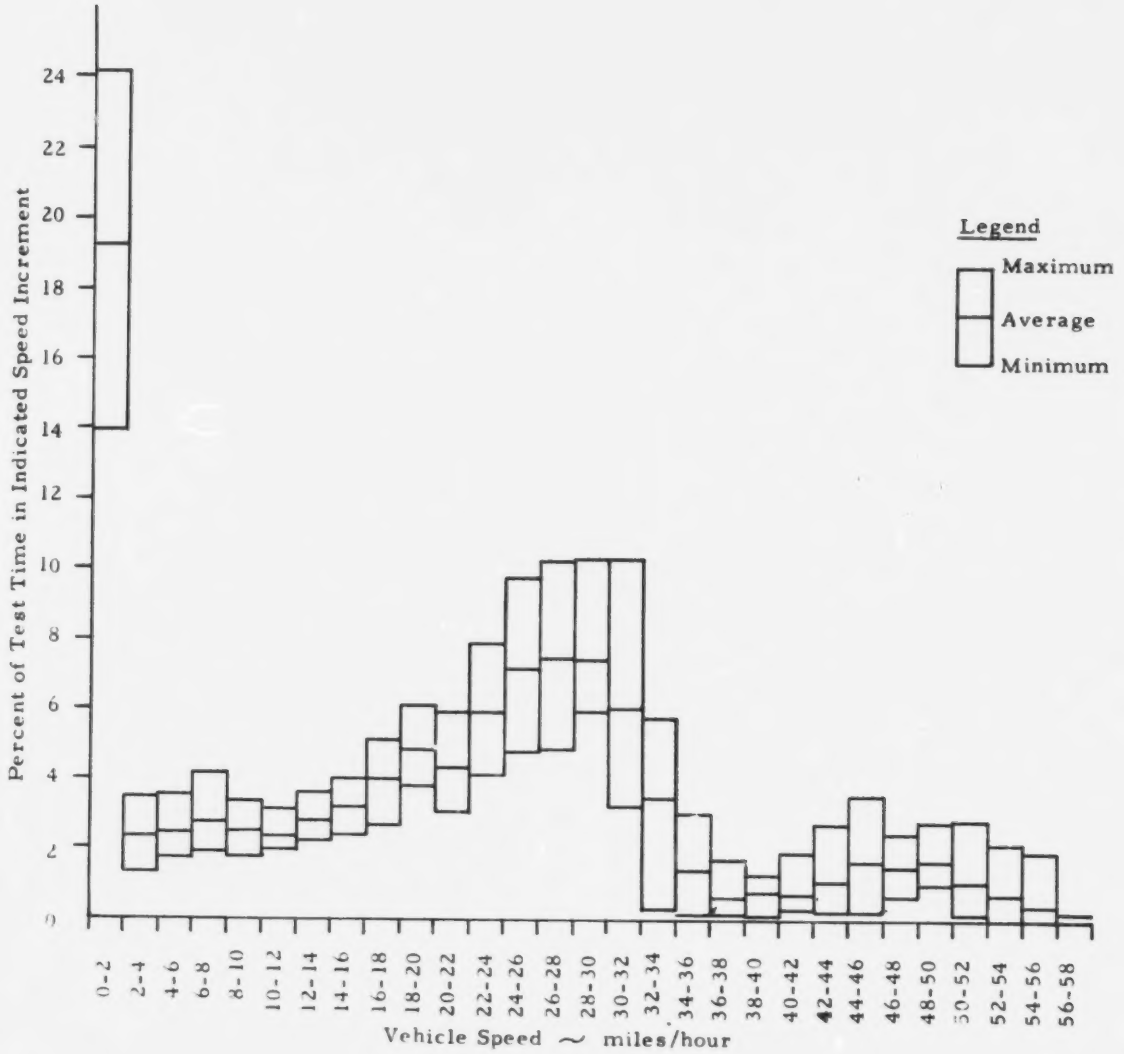

FIGURE E-4. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-4

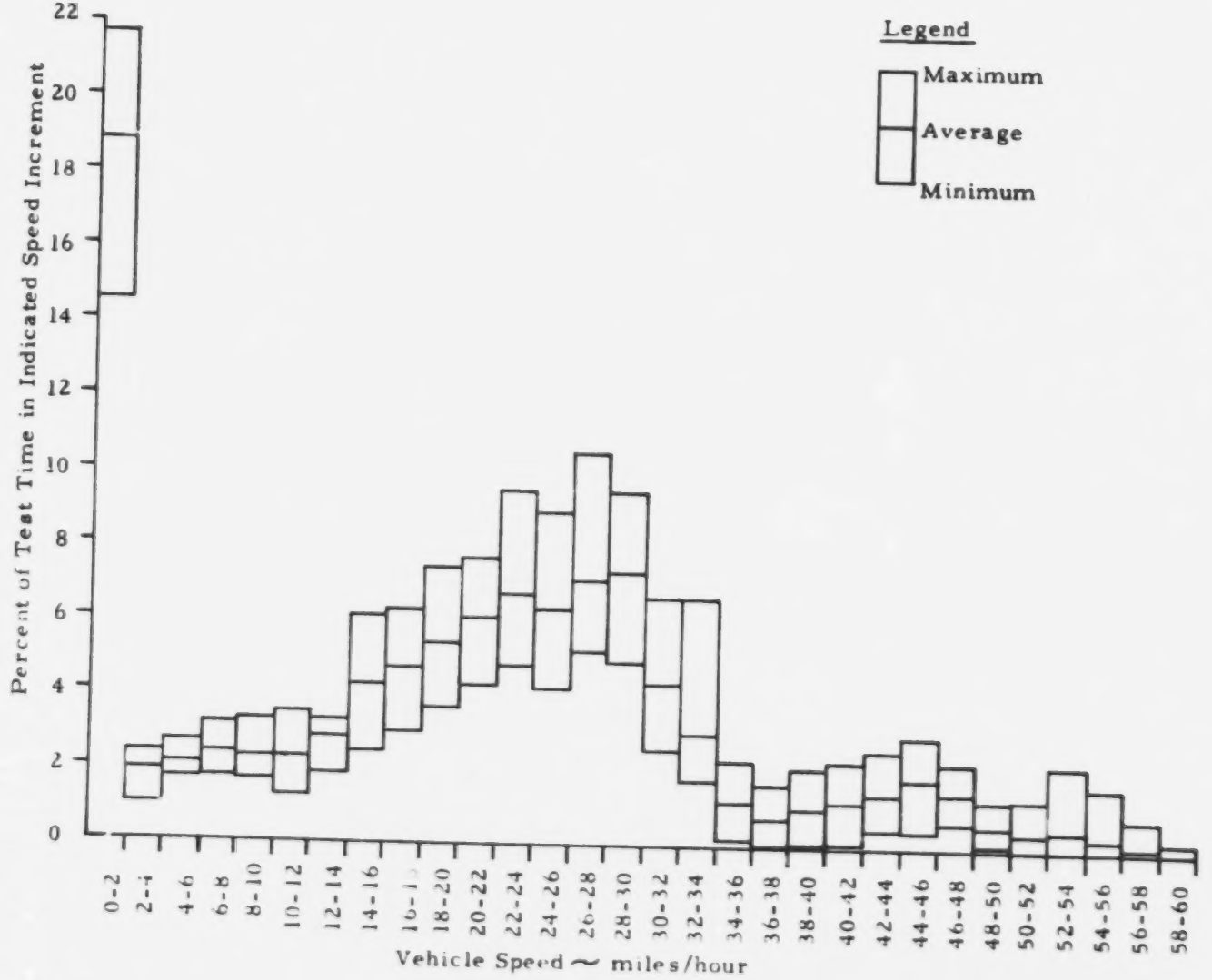

FIGURE E-5. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-5

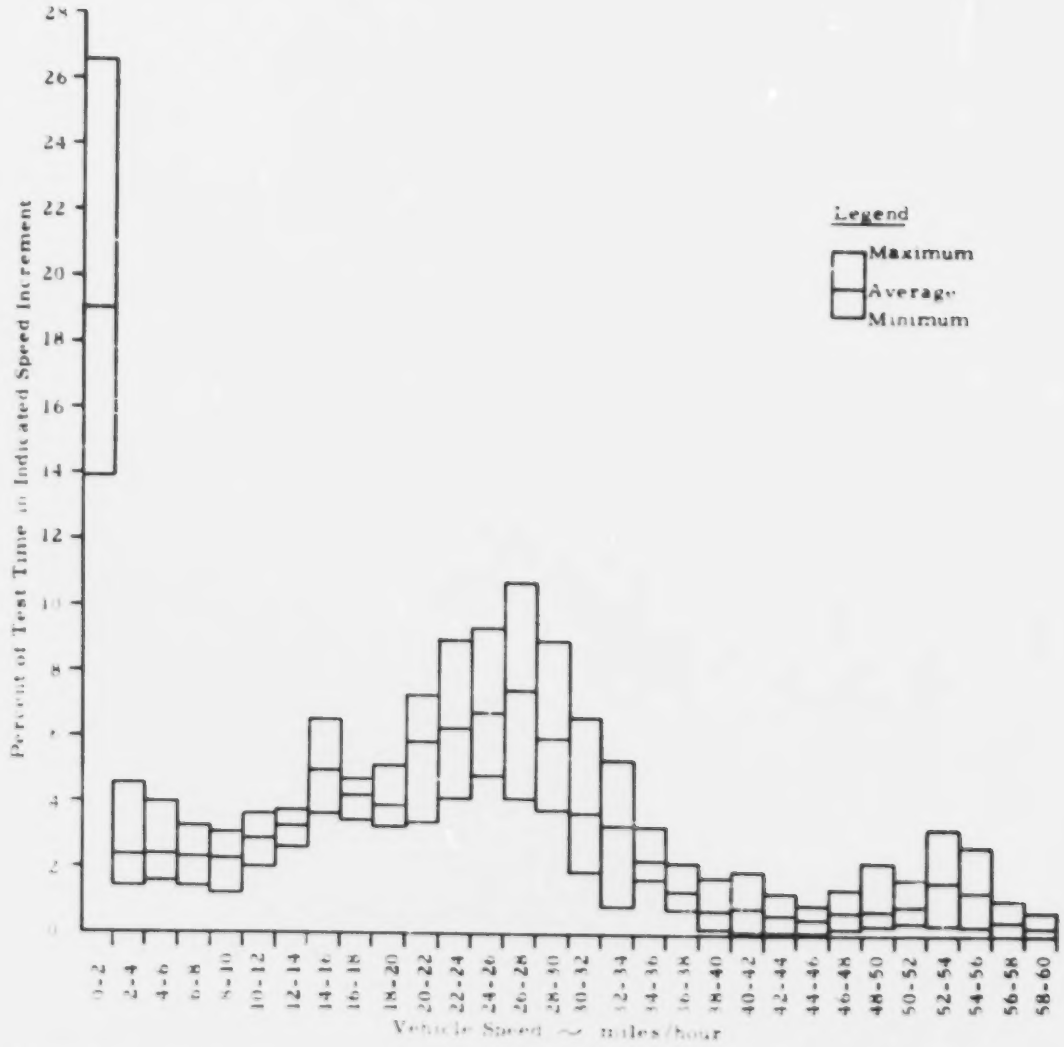

FIGURE E-6. TIME SPENT AT VARIOUS SPEEDS DURING S.A.E. J. TESTS, TRUCK D-6

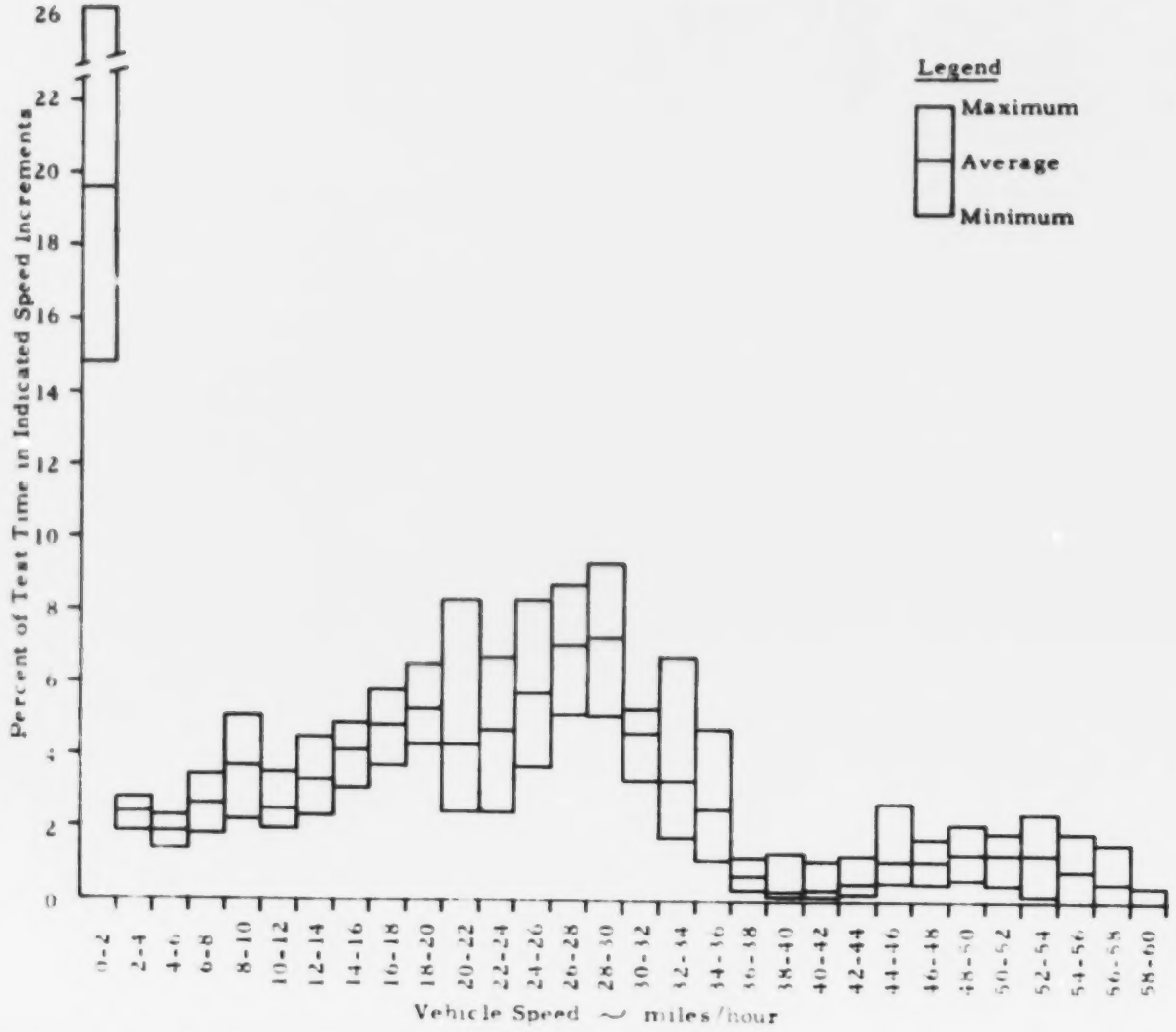

FIGURE E-7. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-7

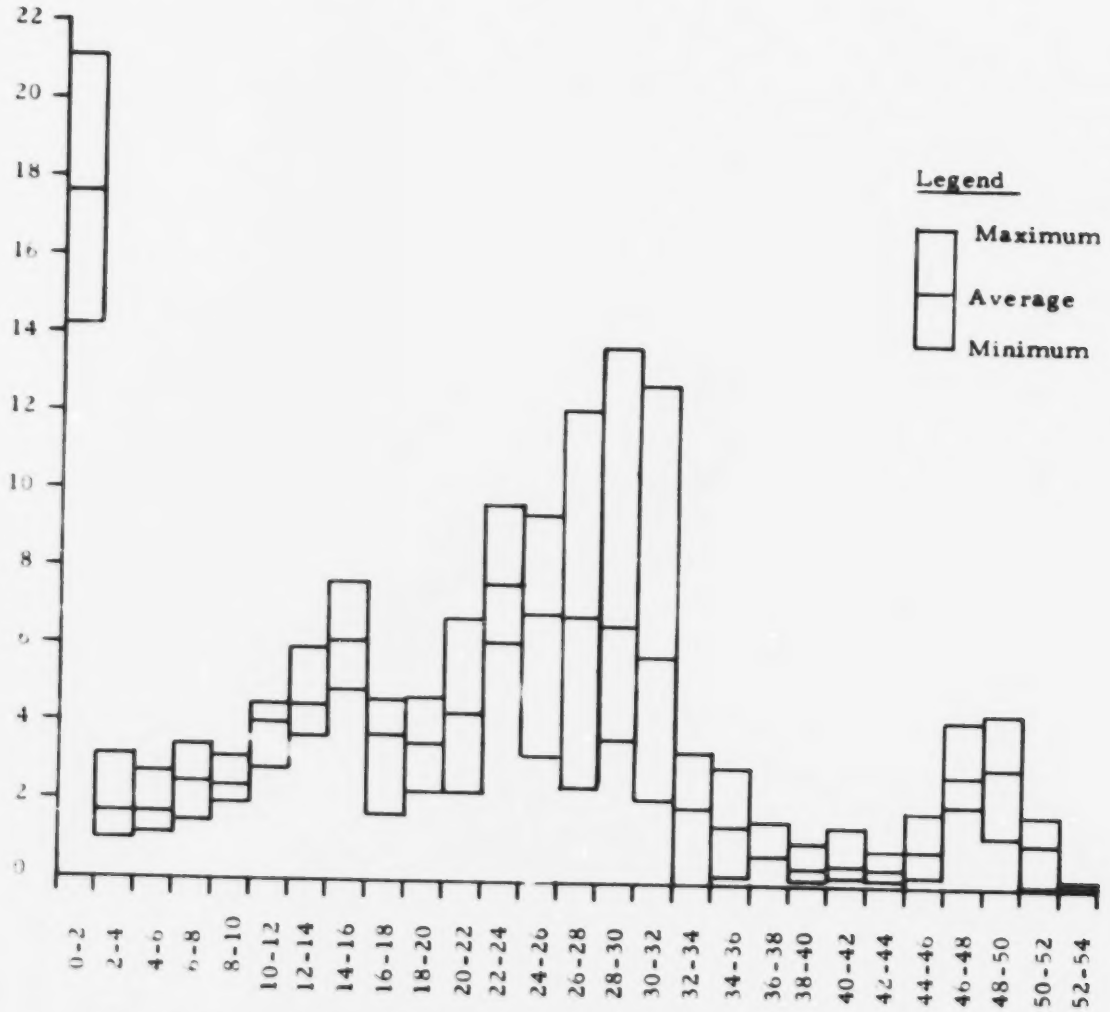

FIGURE E-8 1970 MACK/MACK ENDT 673B, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-8 WHEEL SPEED

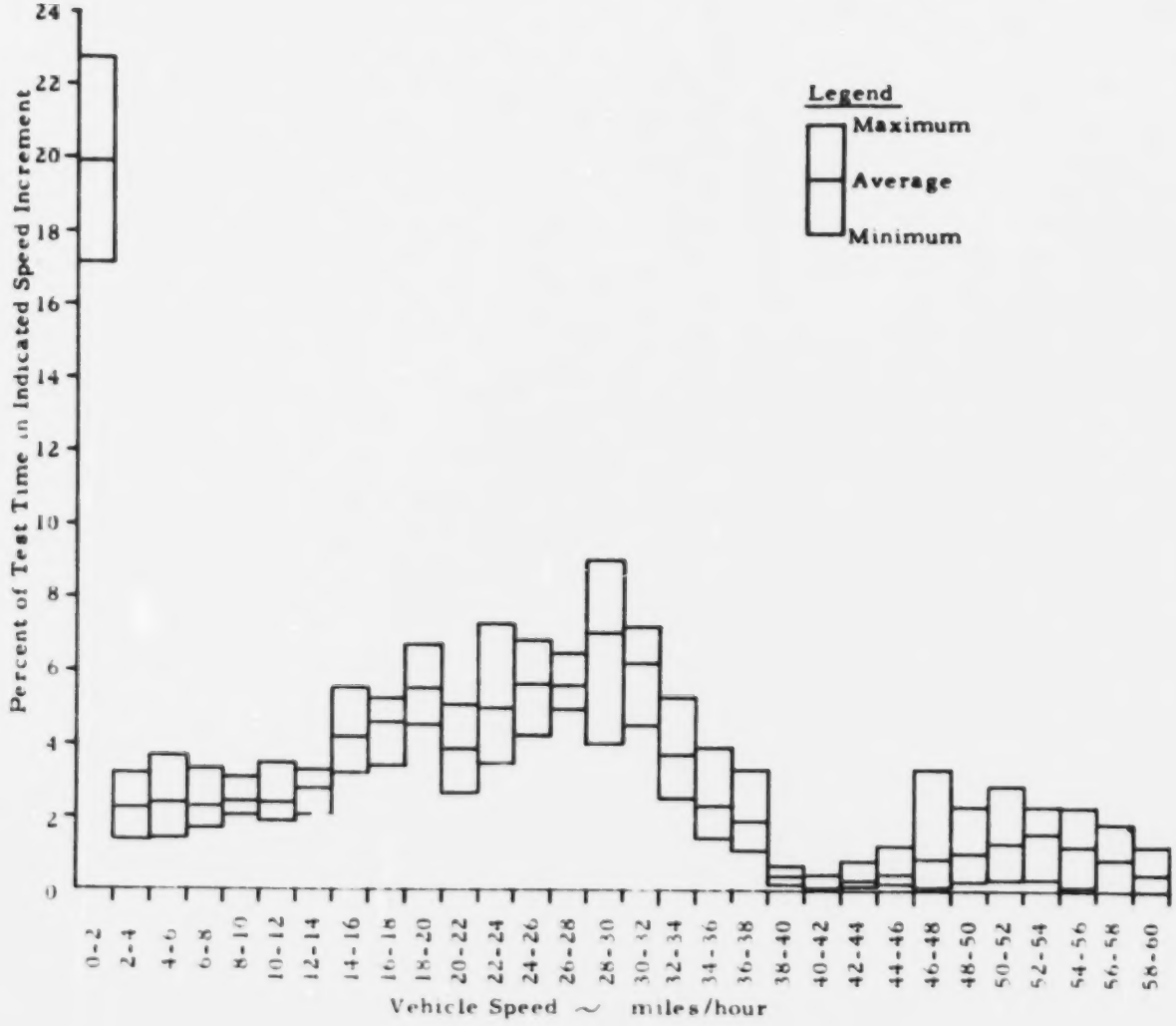

FIGURE E-9. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-9

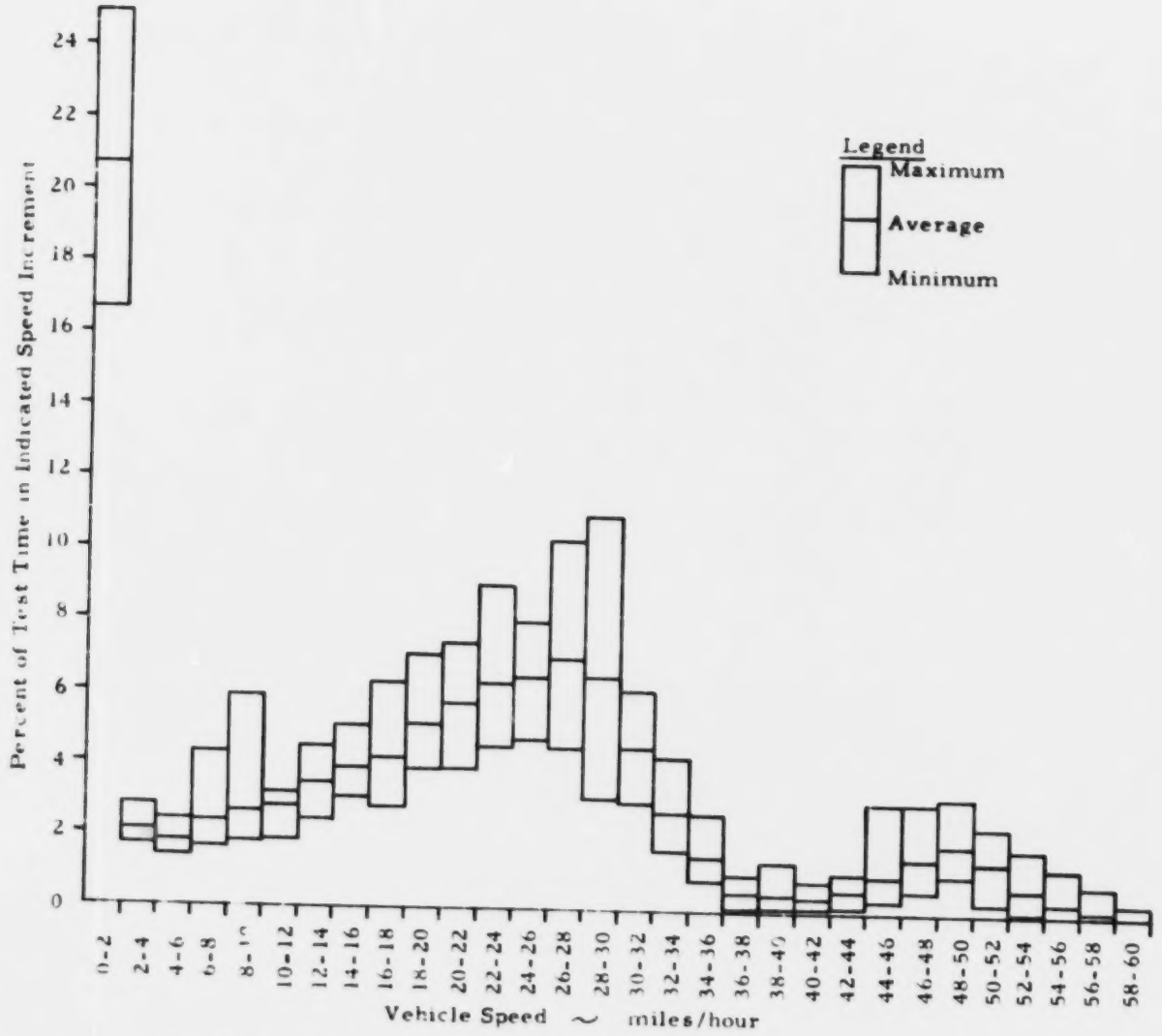

FIGURE E-10. TIME SPENT AT VARIOUS VEHICLE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-10

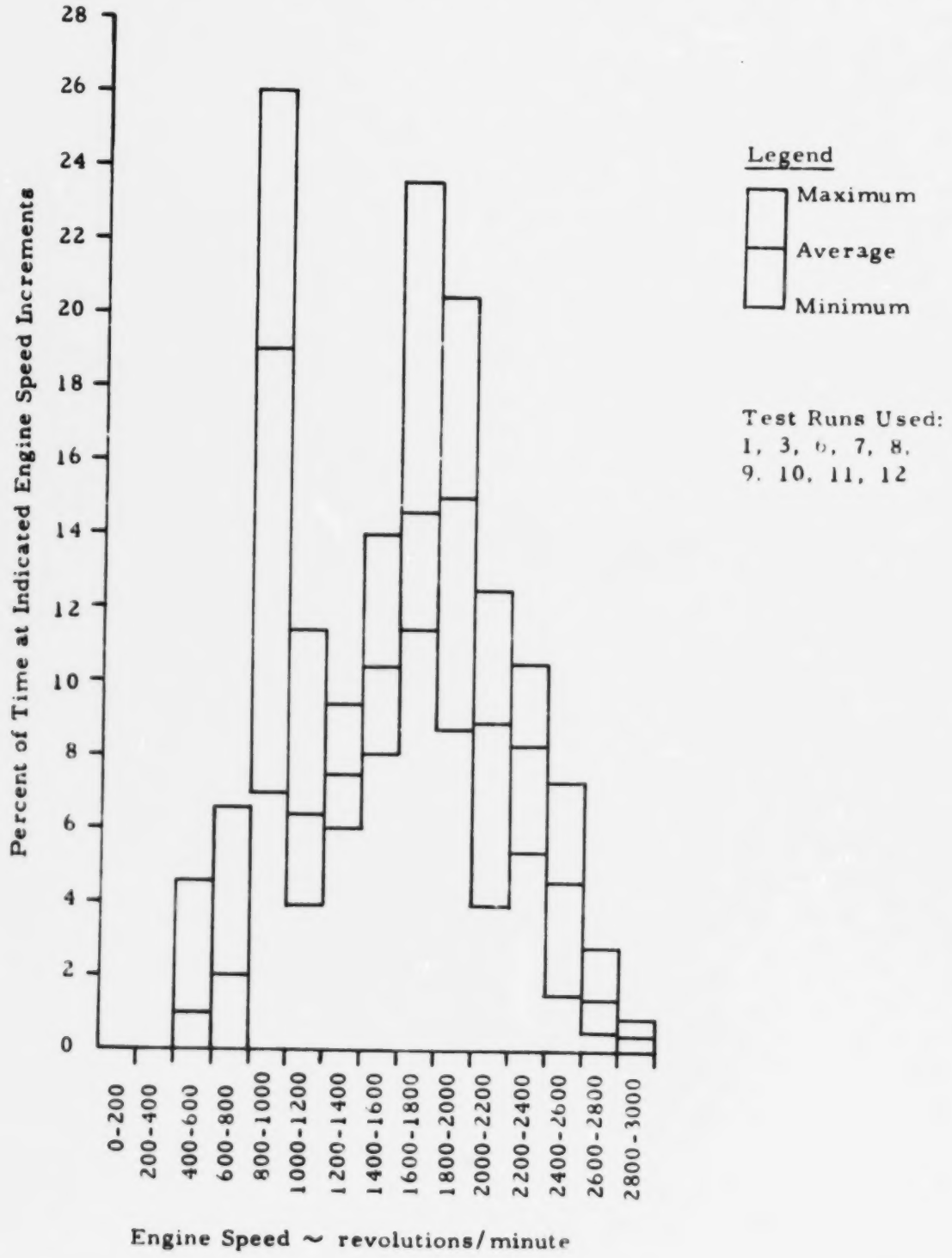

FIGURE E-11. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-1

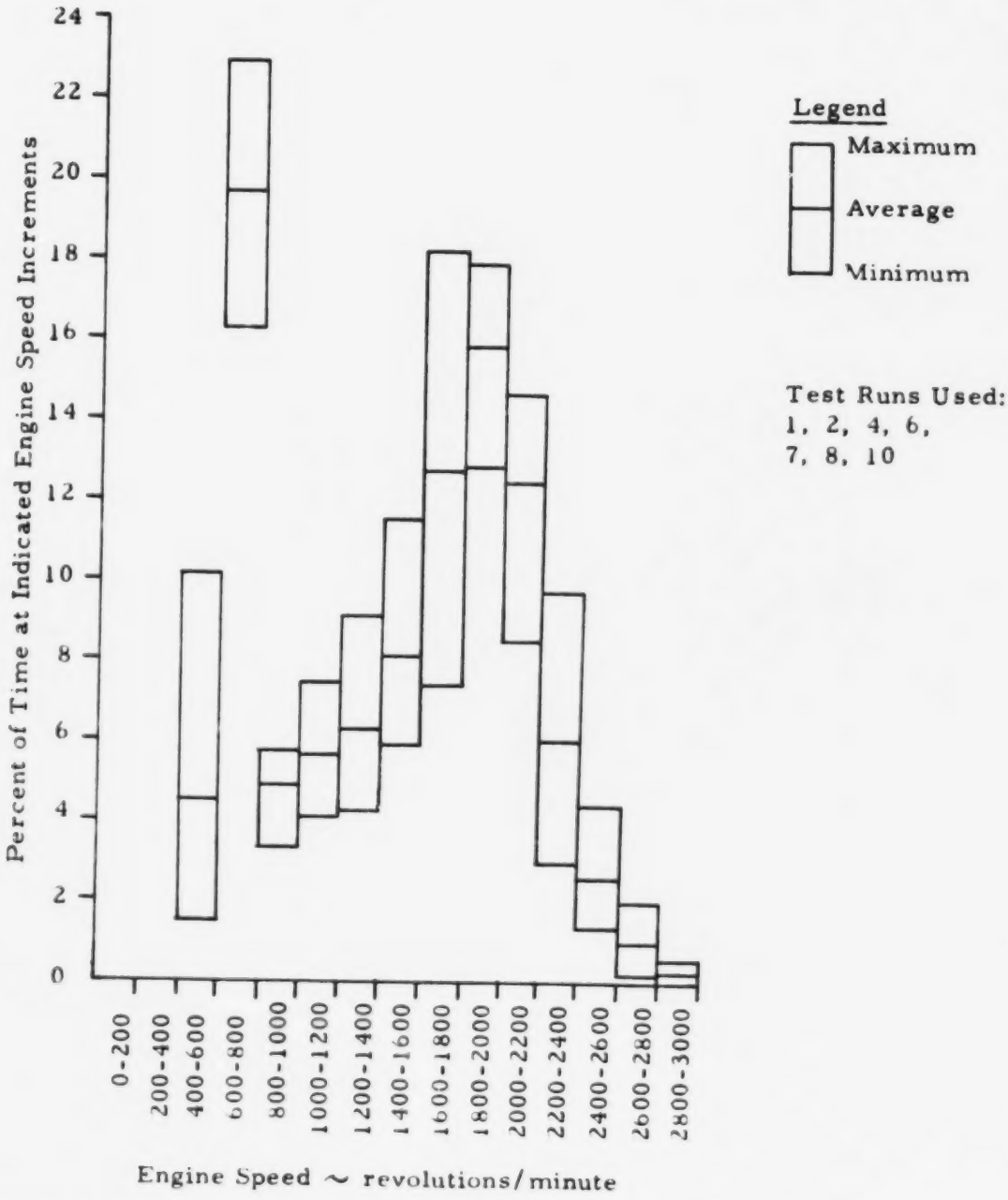

FIGURE E-12. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-2

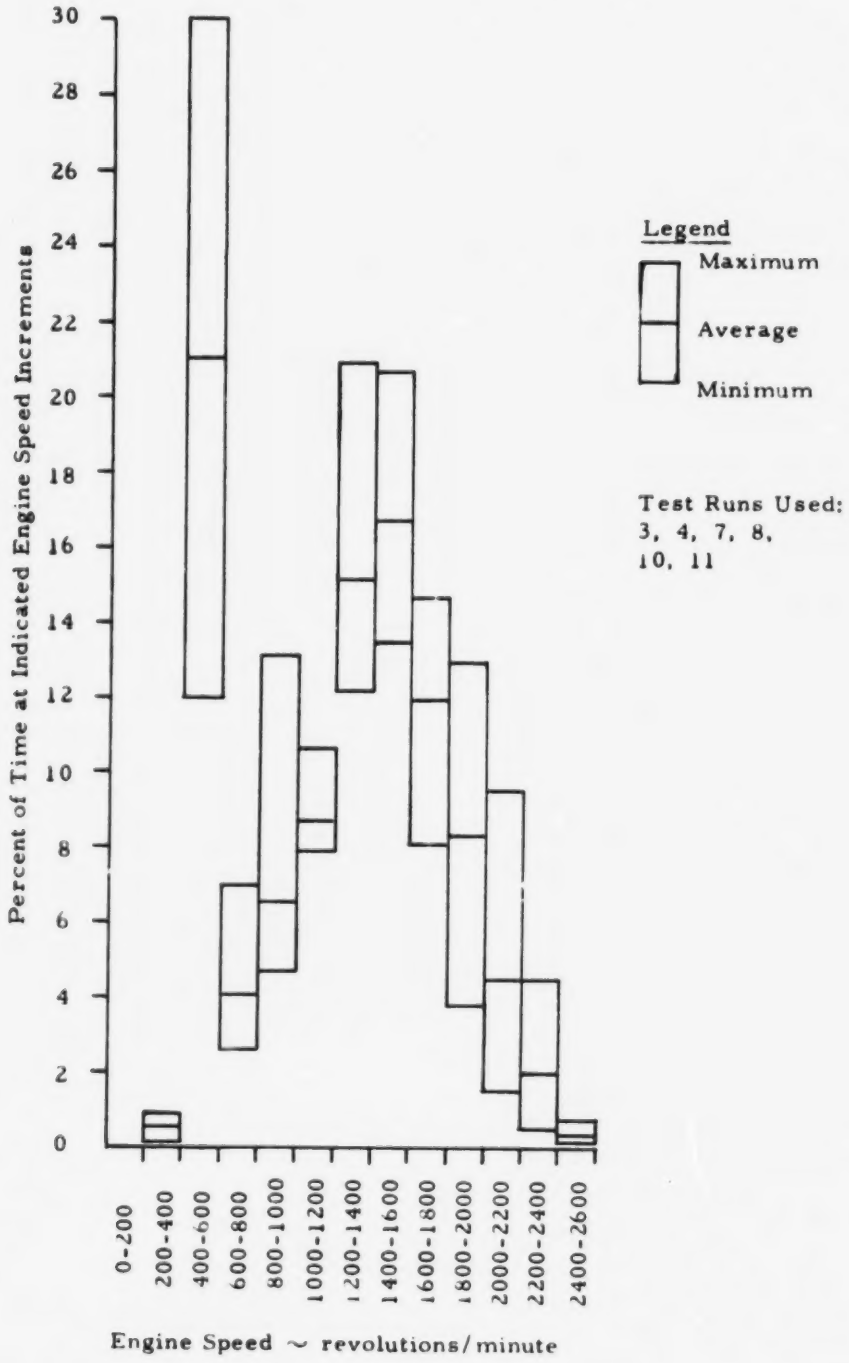

FIGURE E-13. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-3

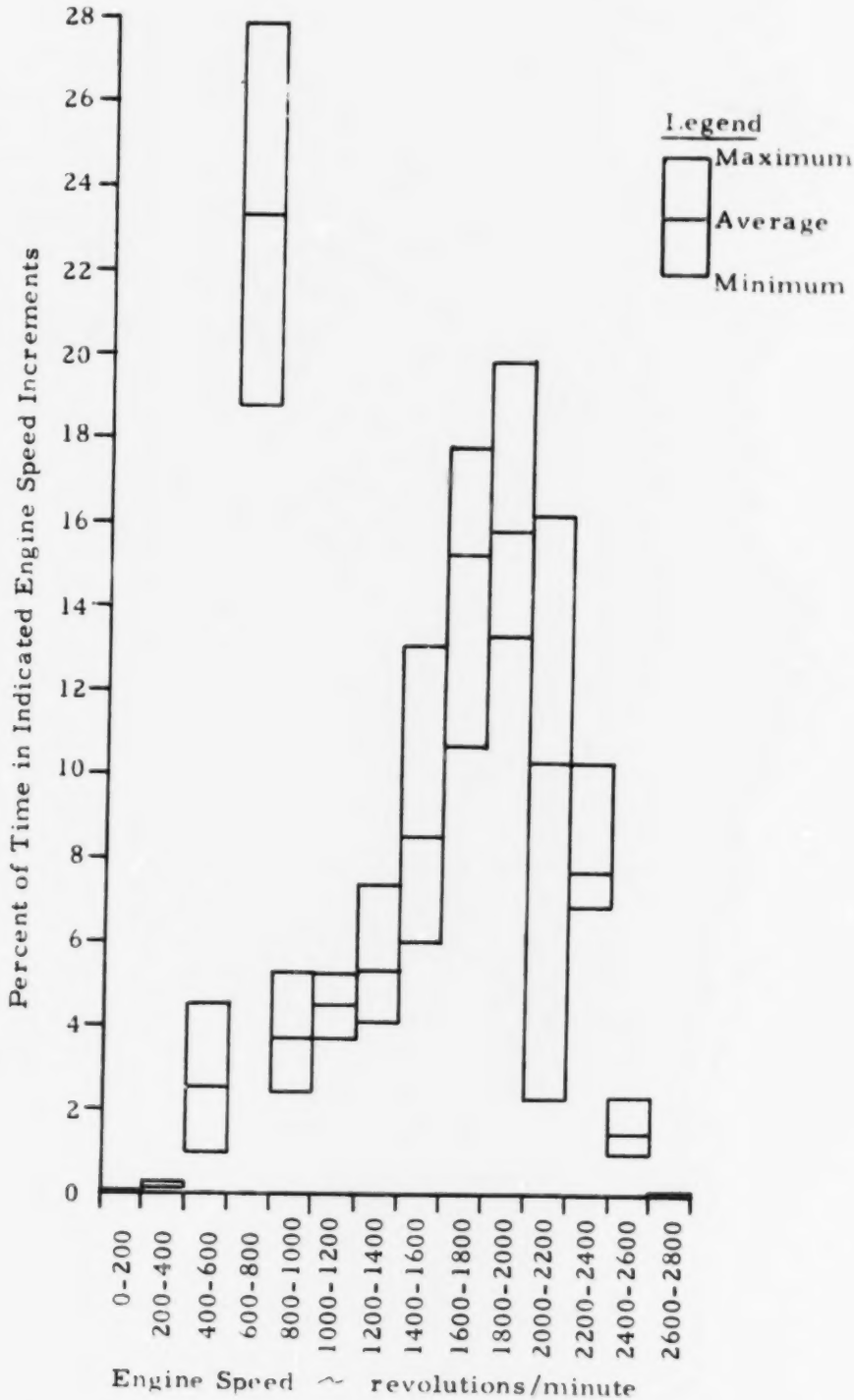

FIGURE E-14. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-4

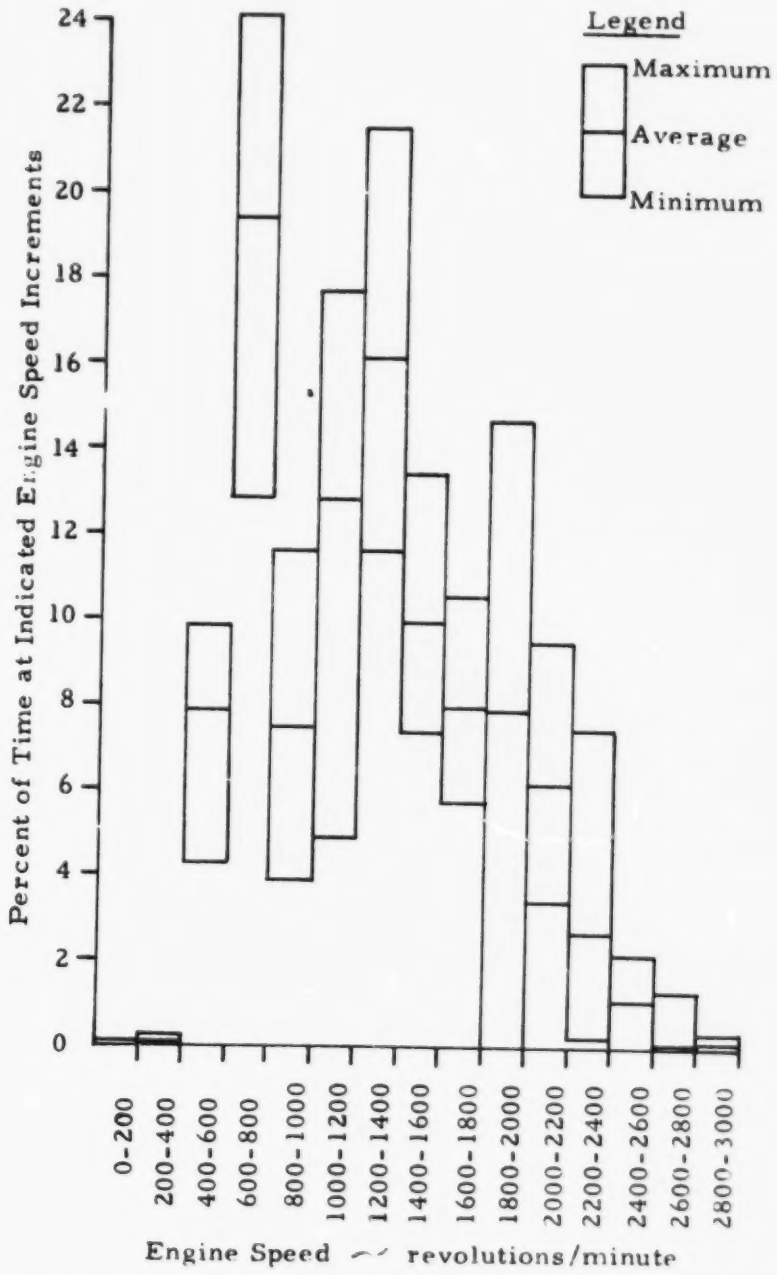

FIGURE E-15. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-5

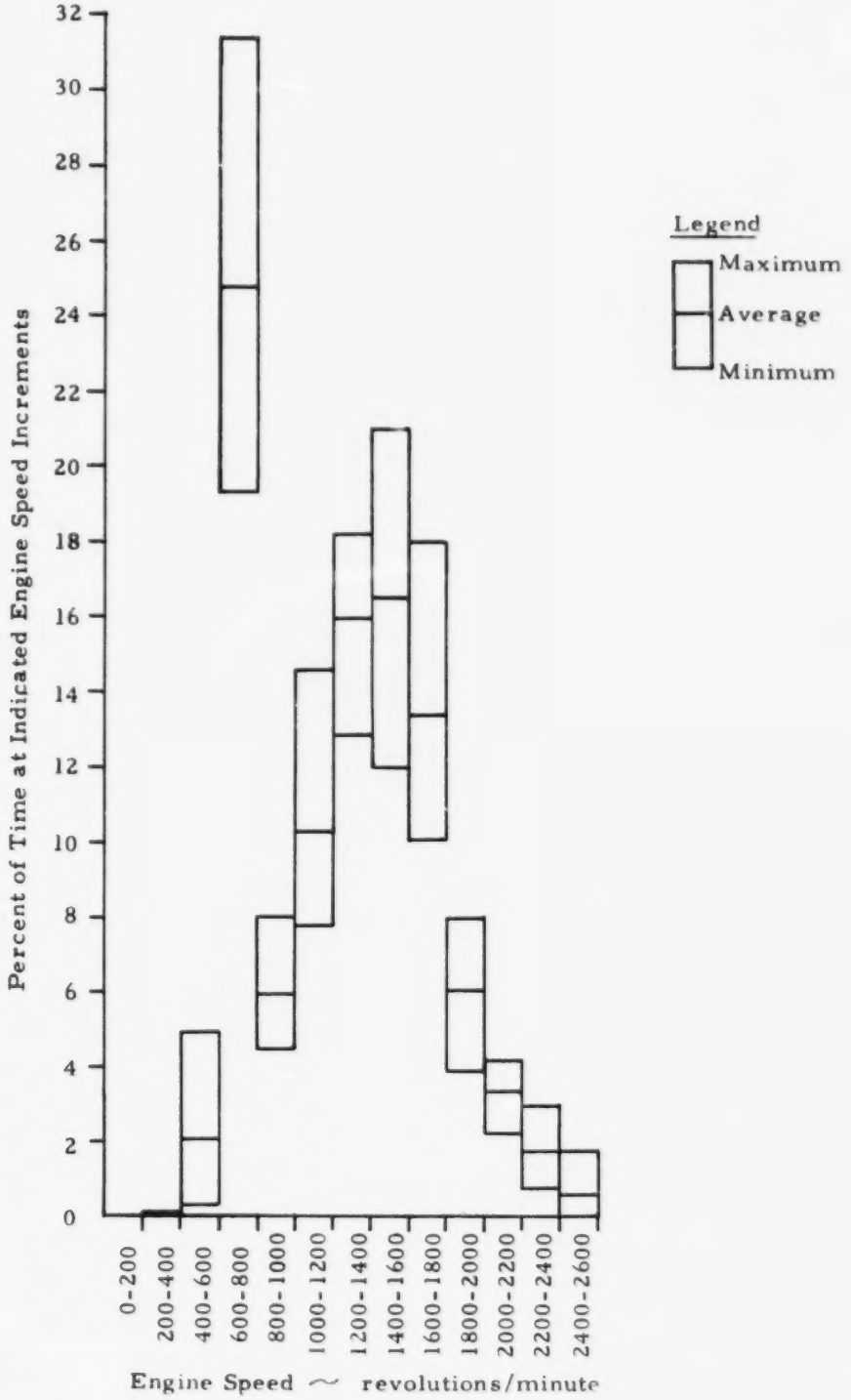

FIGURE E-16. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-6

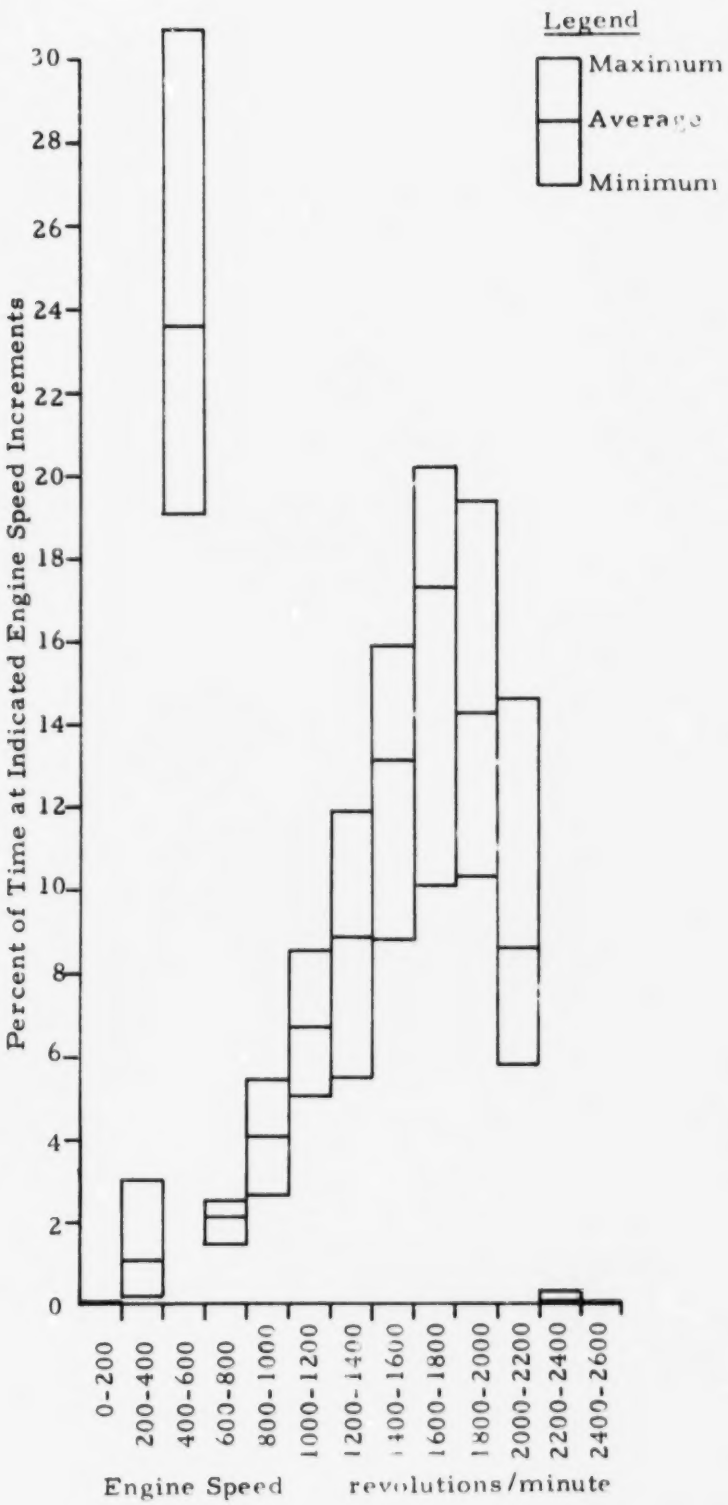

FIGURE E-17. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.E.R.R. TESTS, TRUCK D-7

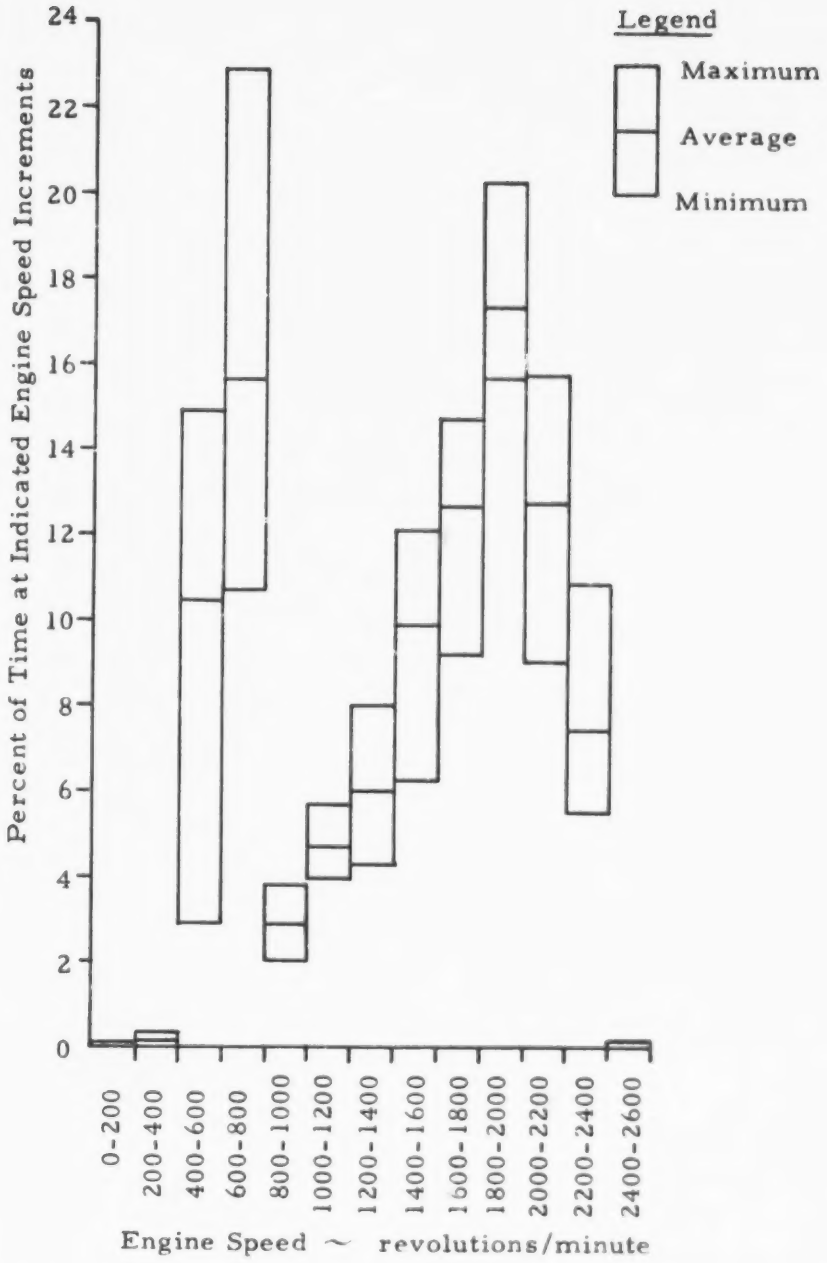

FIGURE E-18. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-9

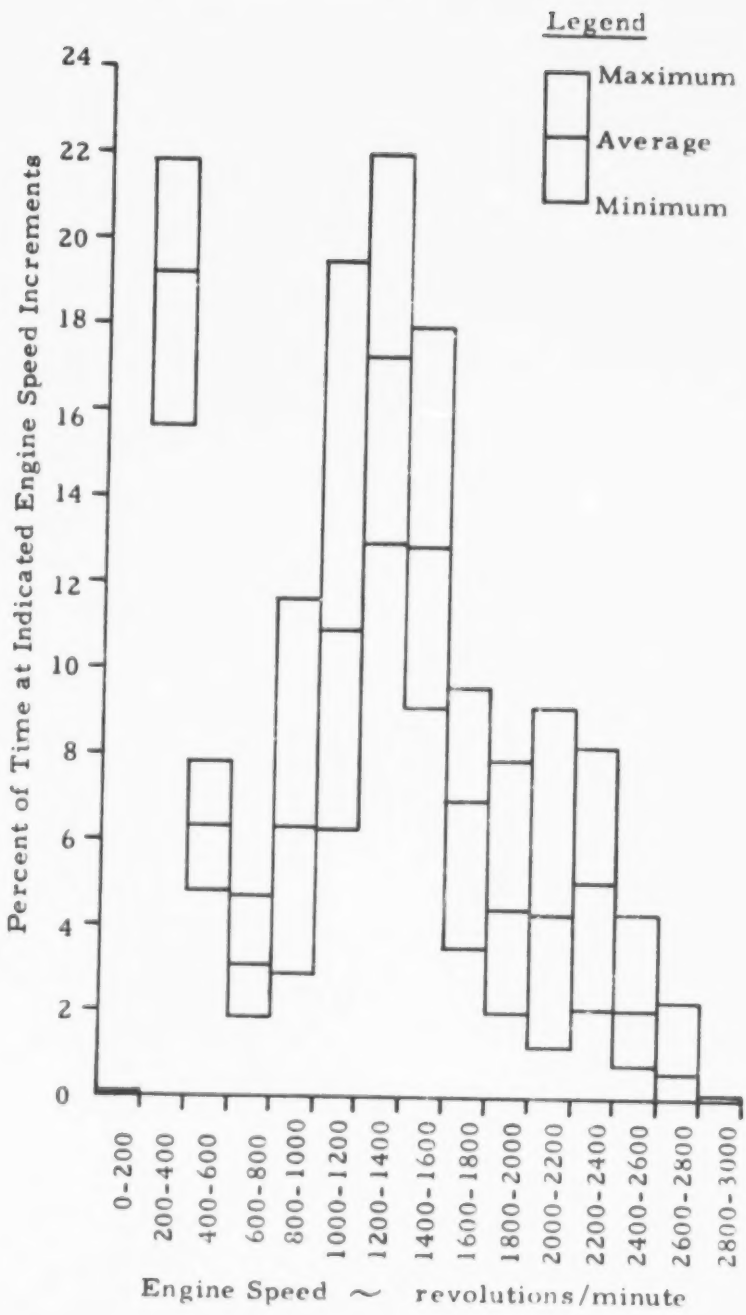

FIGURE E-19. TIME SPENT AT VARIOUS ENGINE SPEEDS DURING S.A.R.R. TESTS, TRUCK D-10

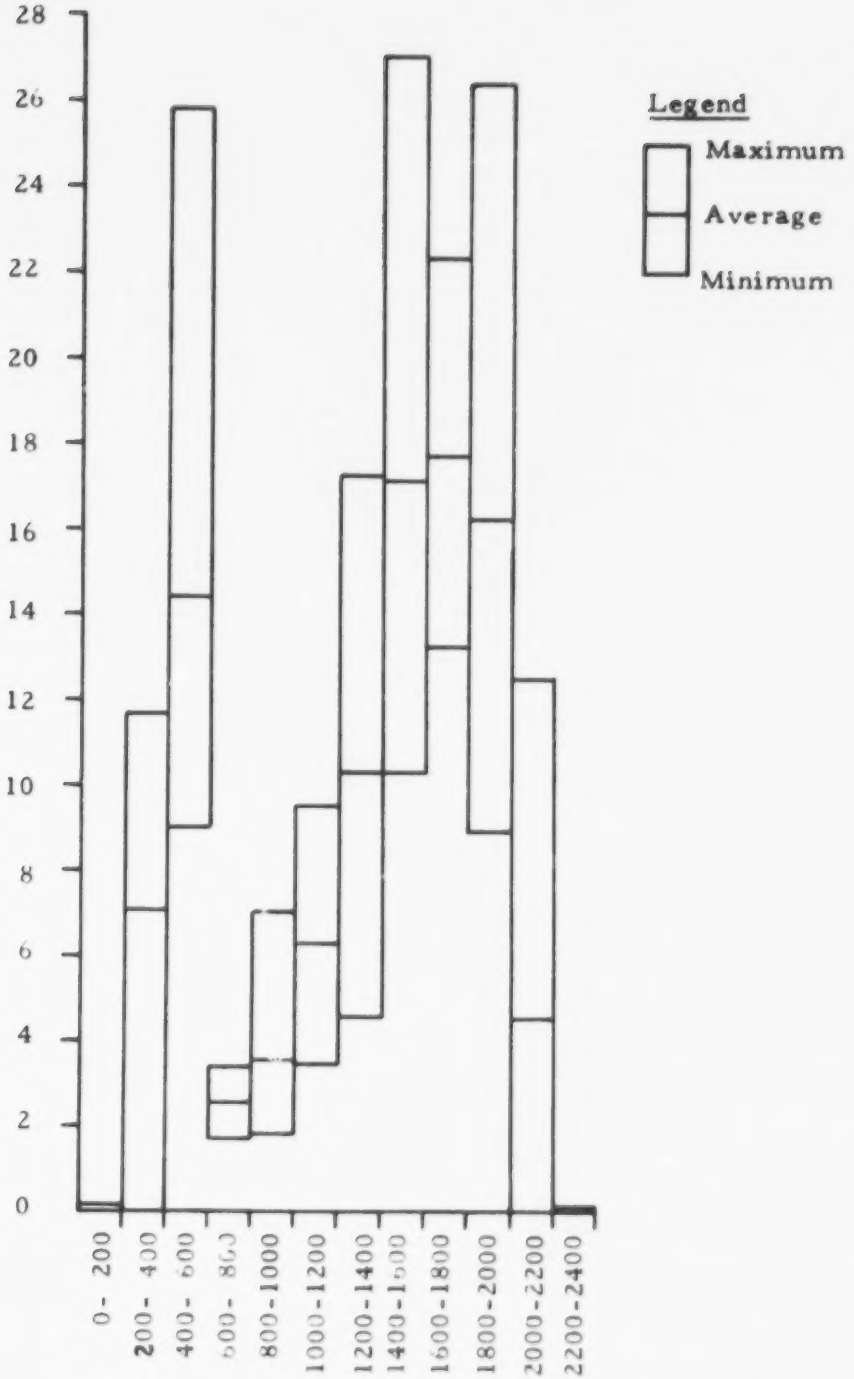

FIGURE E-20. MACK/MACK ENDT 673B, 672 CID I6 TRACTOR, GCW 58000 LB., TRUCK D-8 RPM

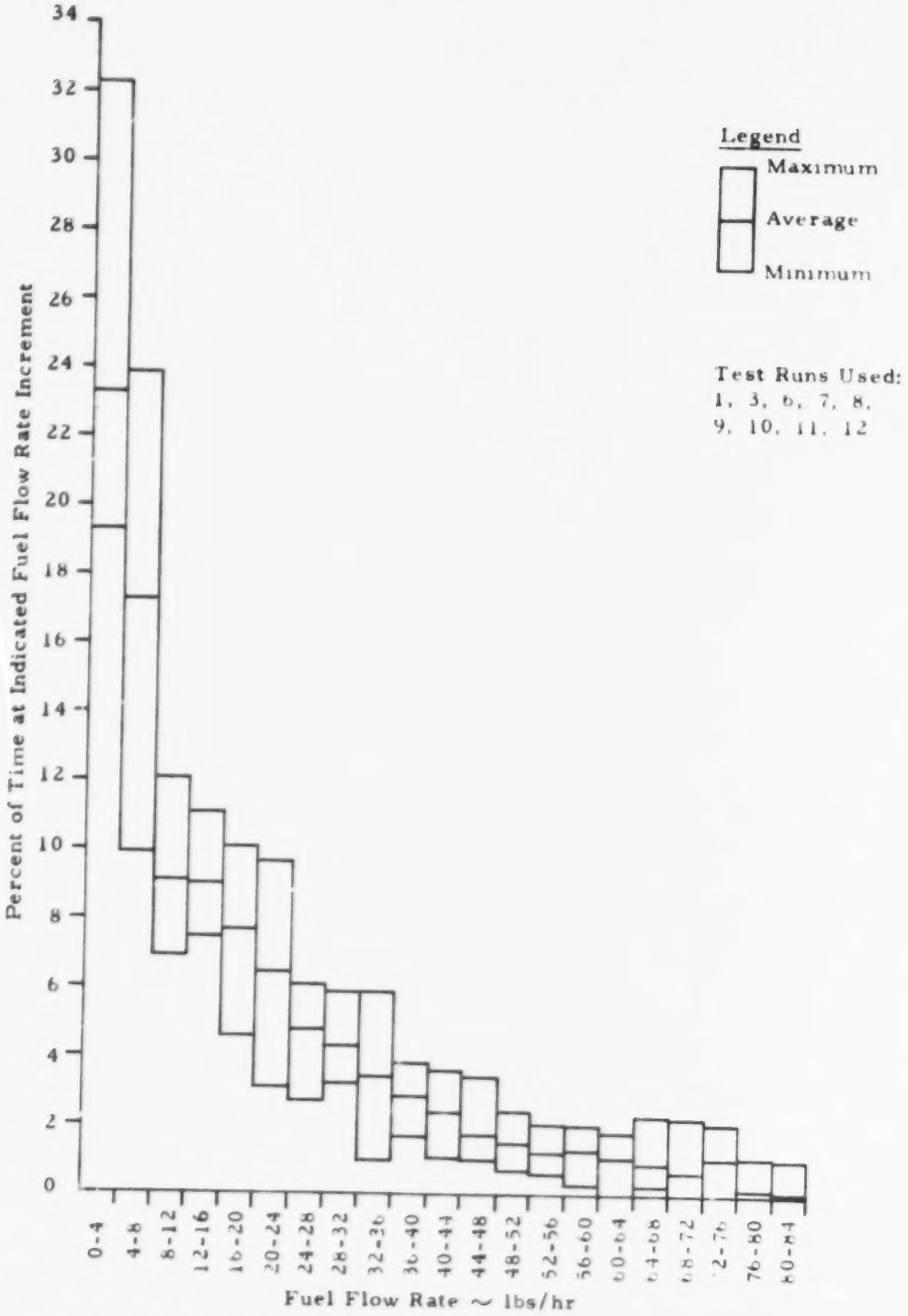

FIGURE E-21. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-1

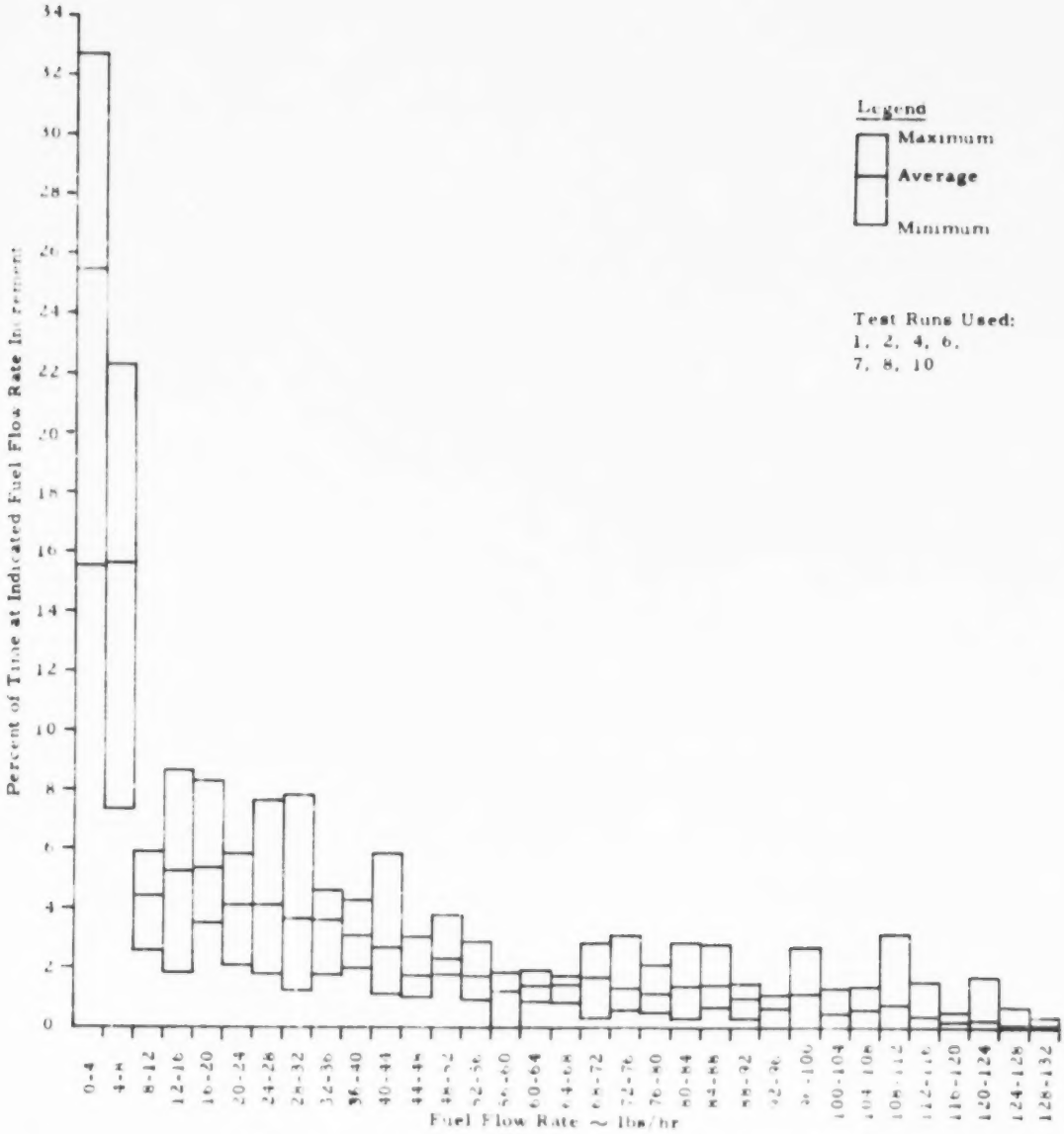

FIGURE E-22 TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.B TESTS, TRUCK D-2

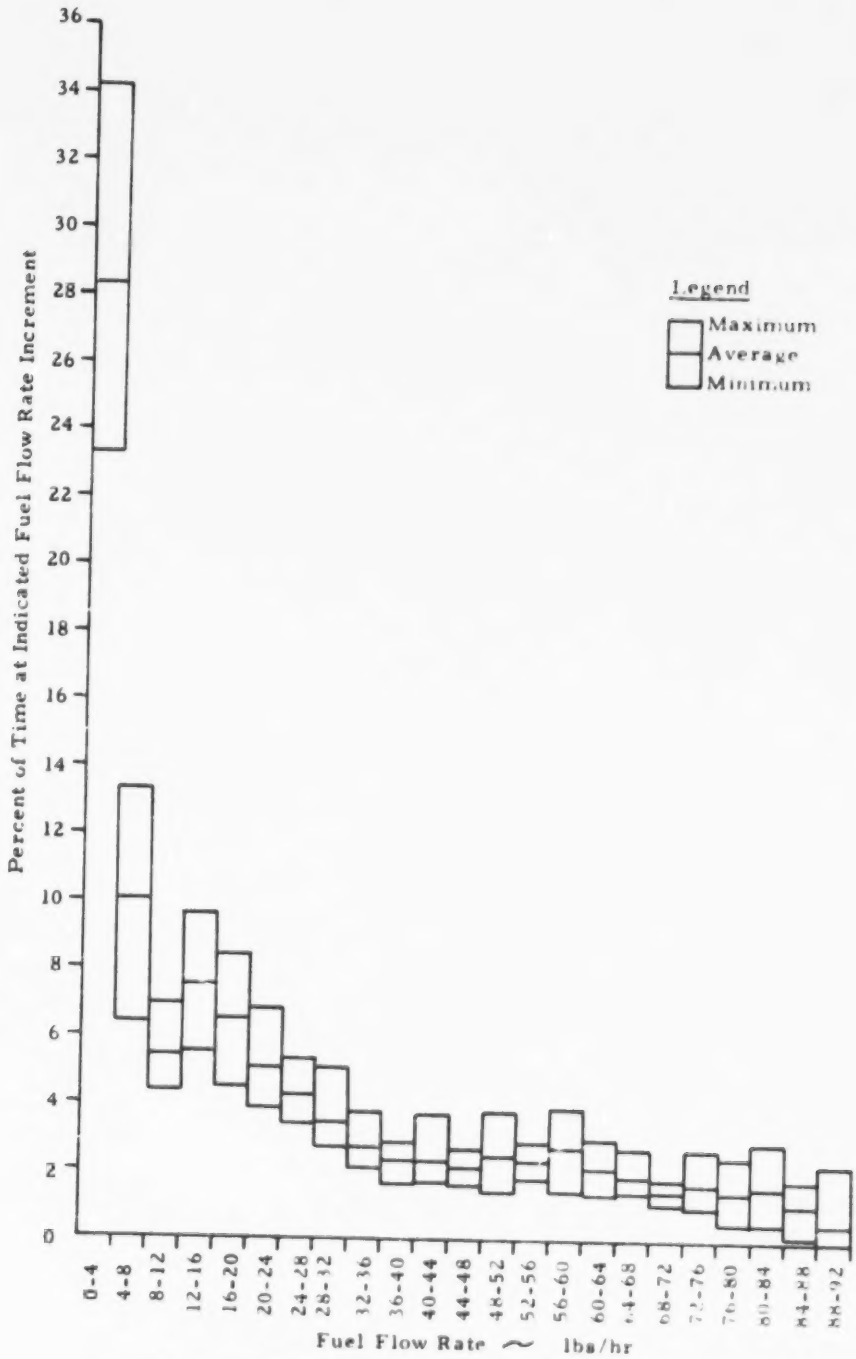

FIGURE E-23. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-4

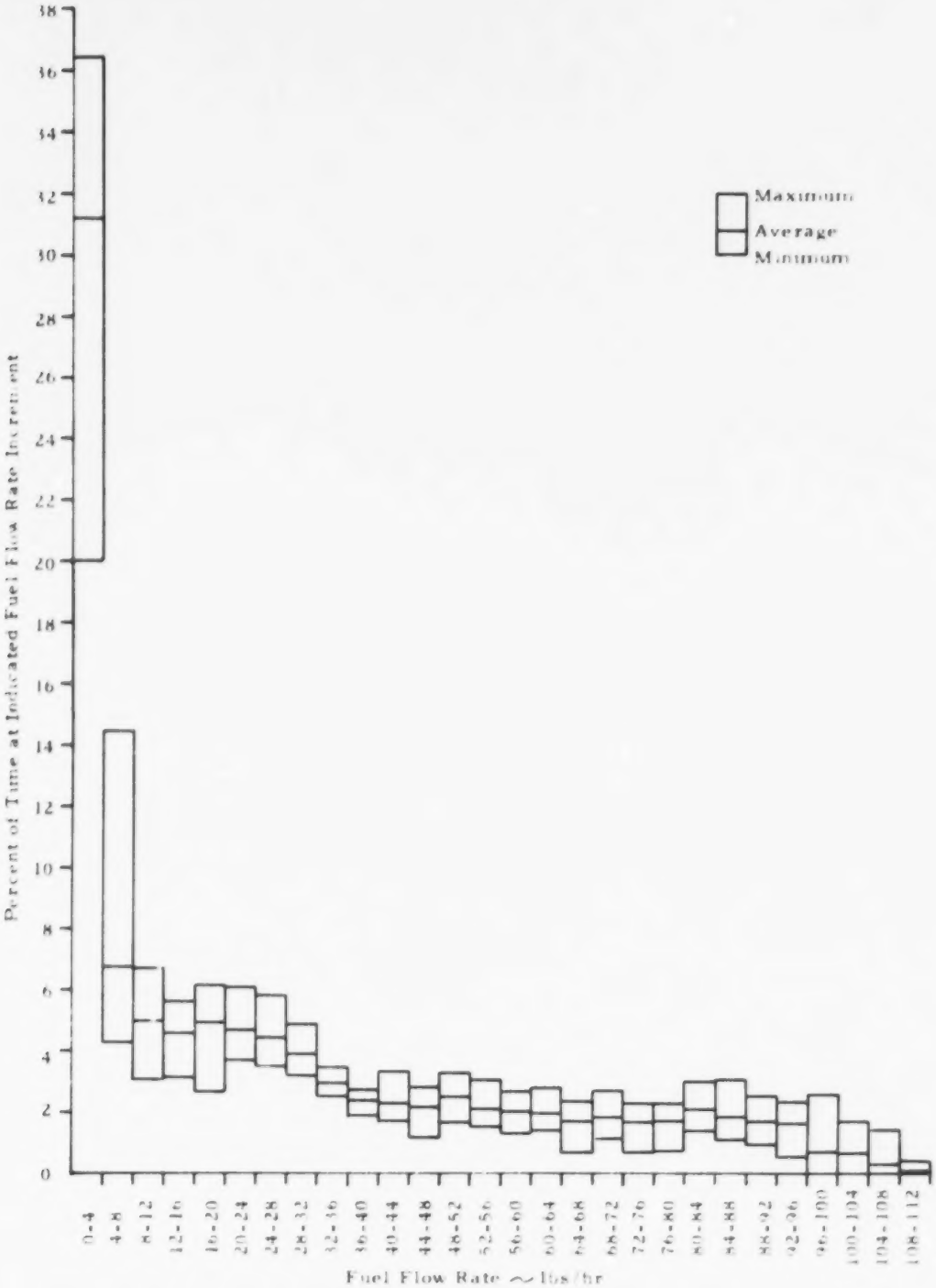

FIGURE E-24. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.E.R. TESTS, TRUCK D-4

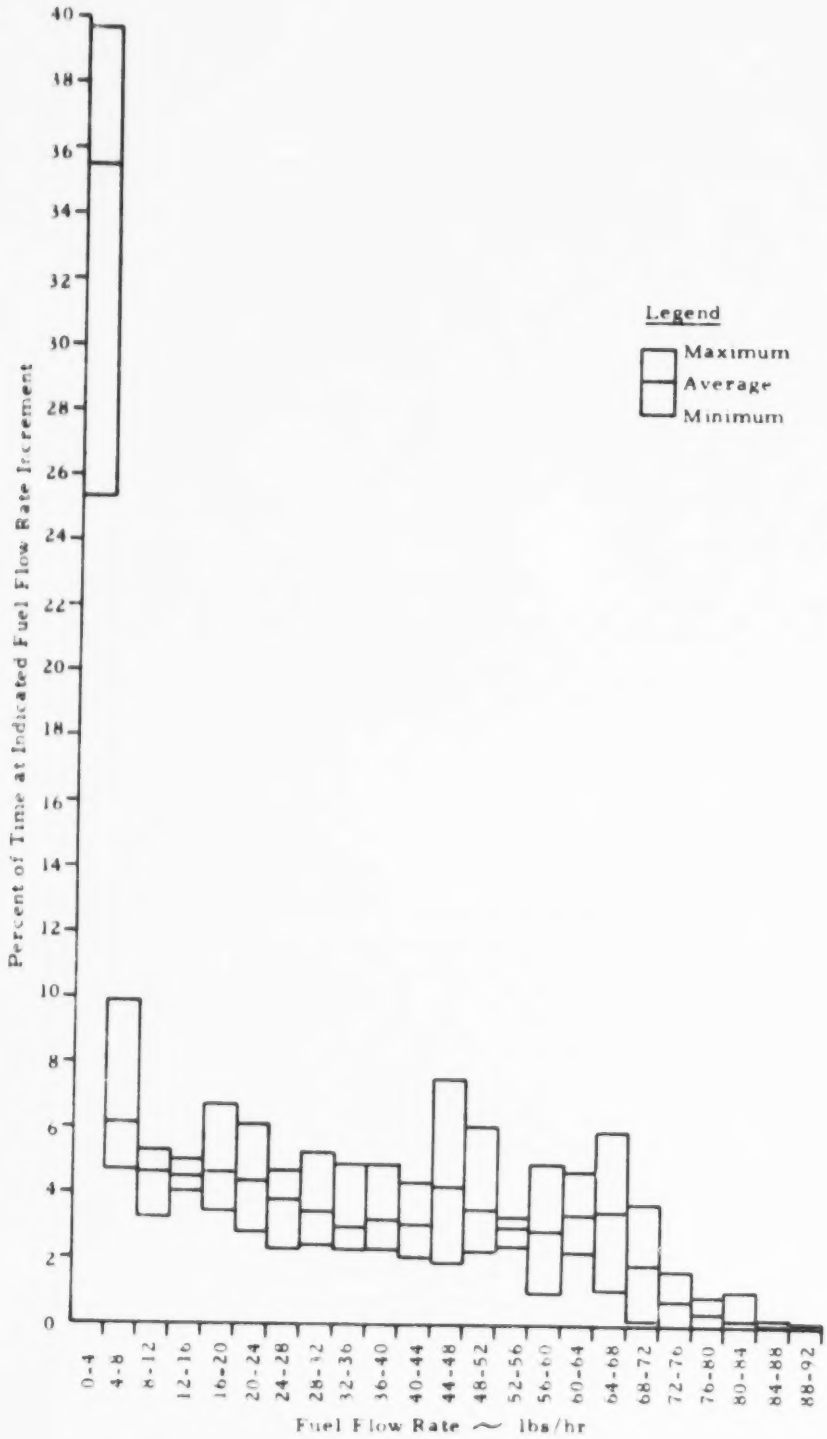

FIGURE E-25. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S. A. R. R. TESTS, TRUCK D-5

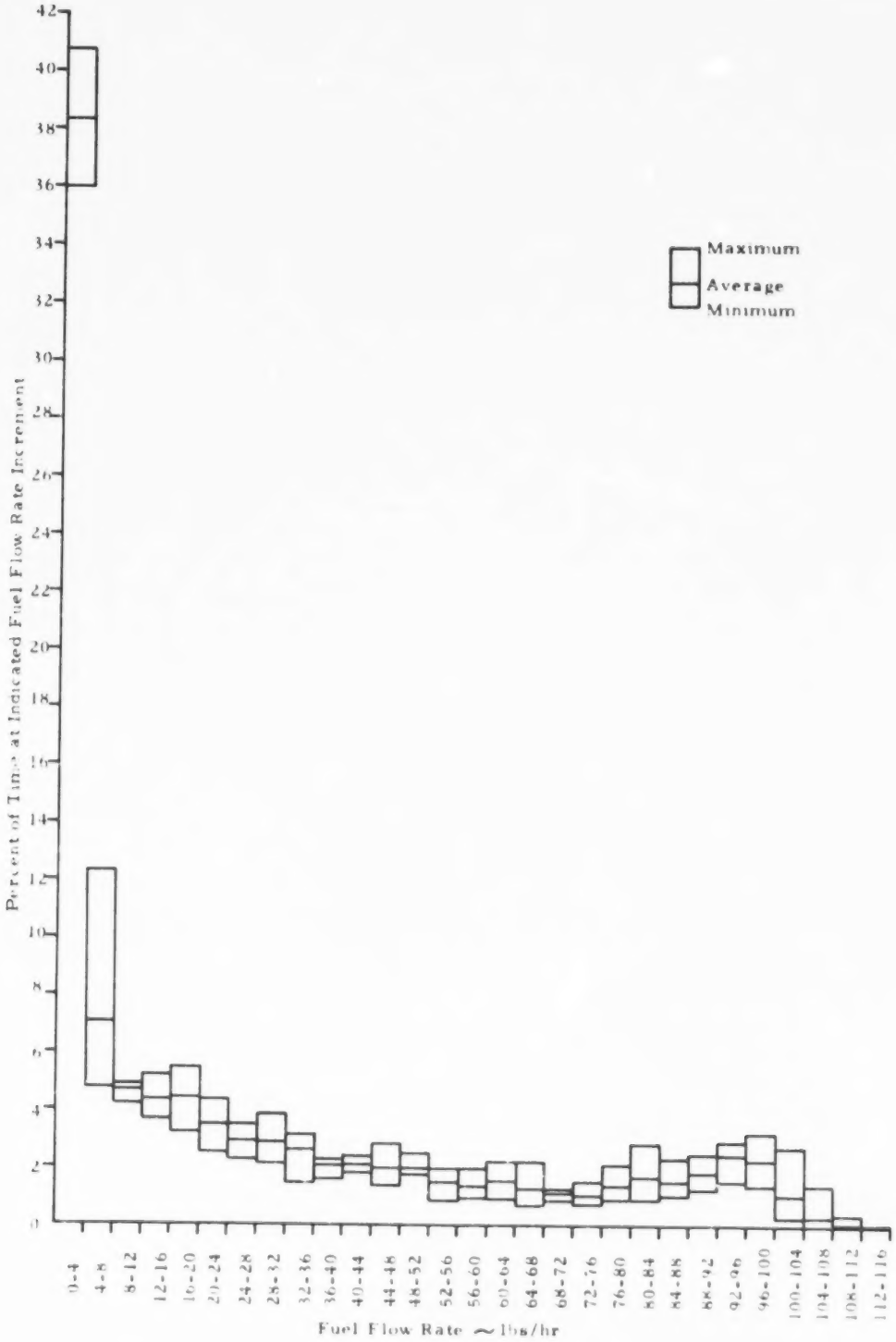

FIGURE E-26, TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-6

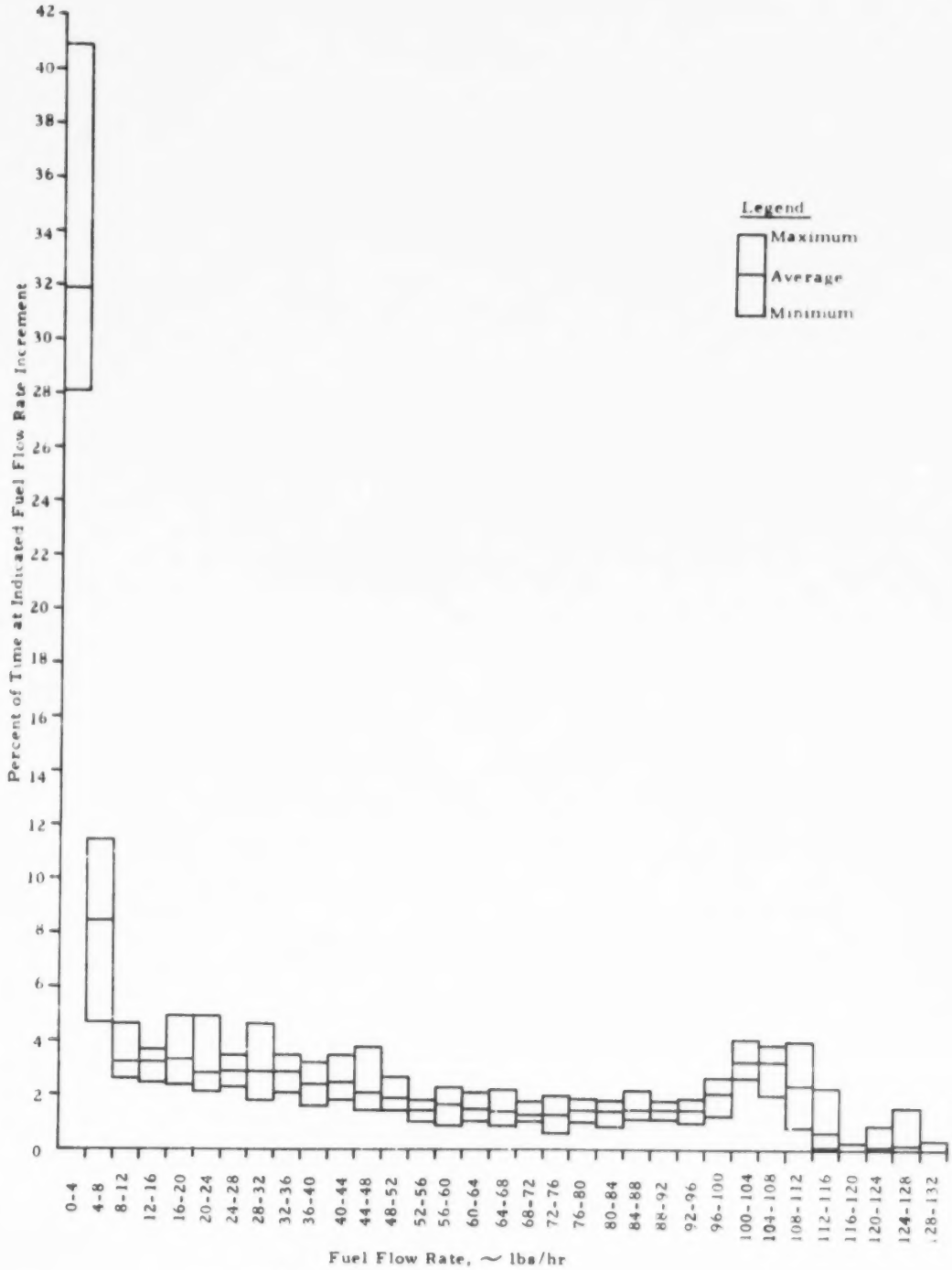

FIGURE E-27. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-7

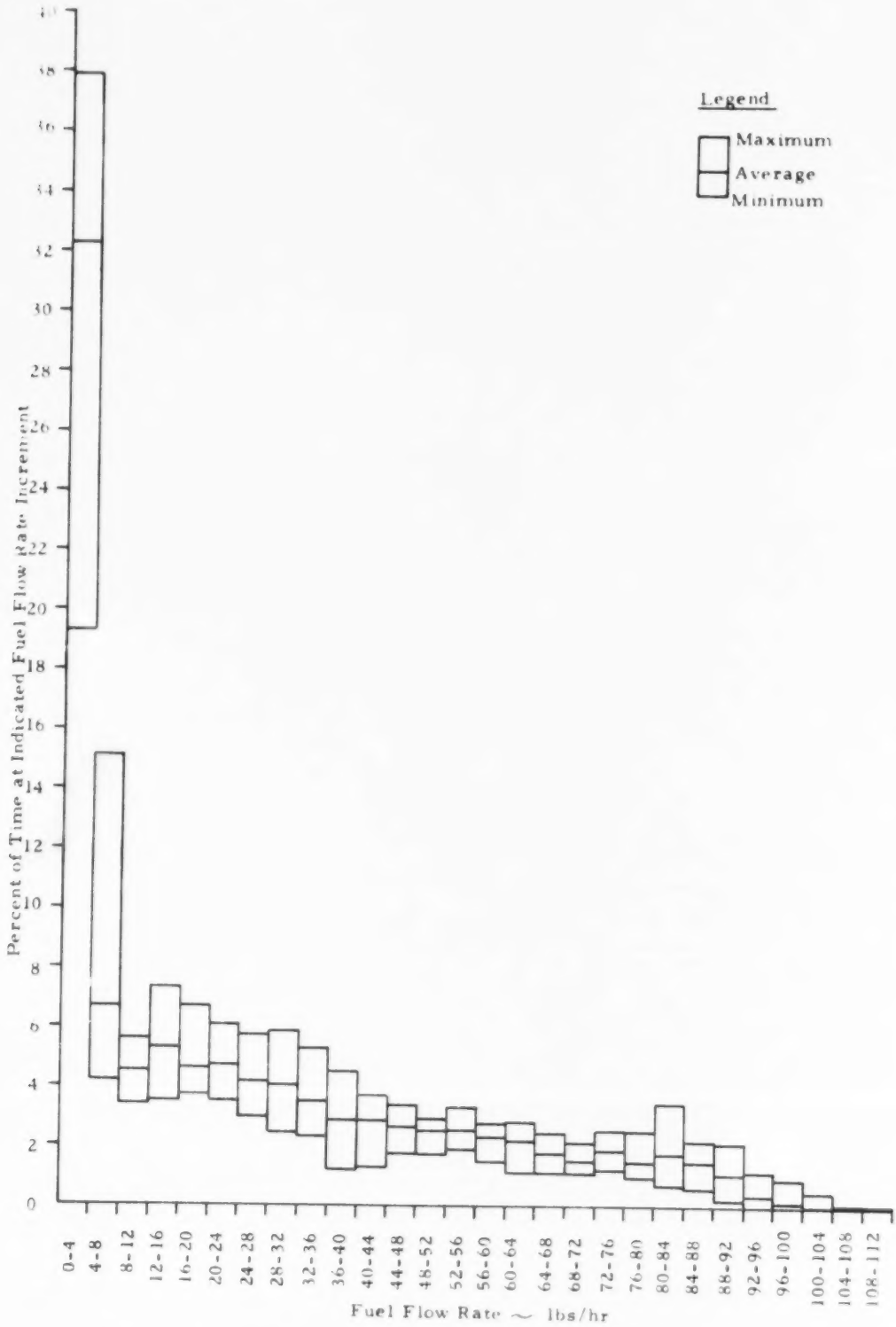

FIGURE E-28. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-8

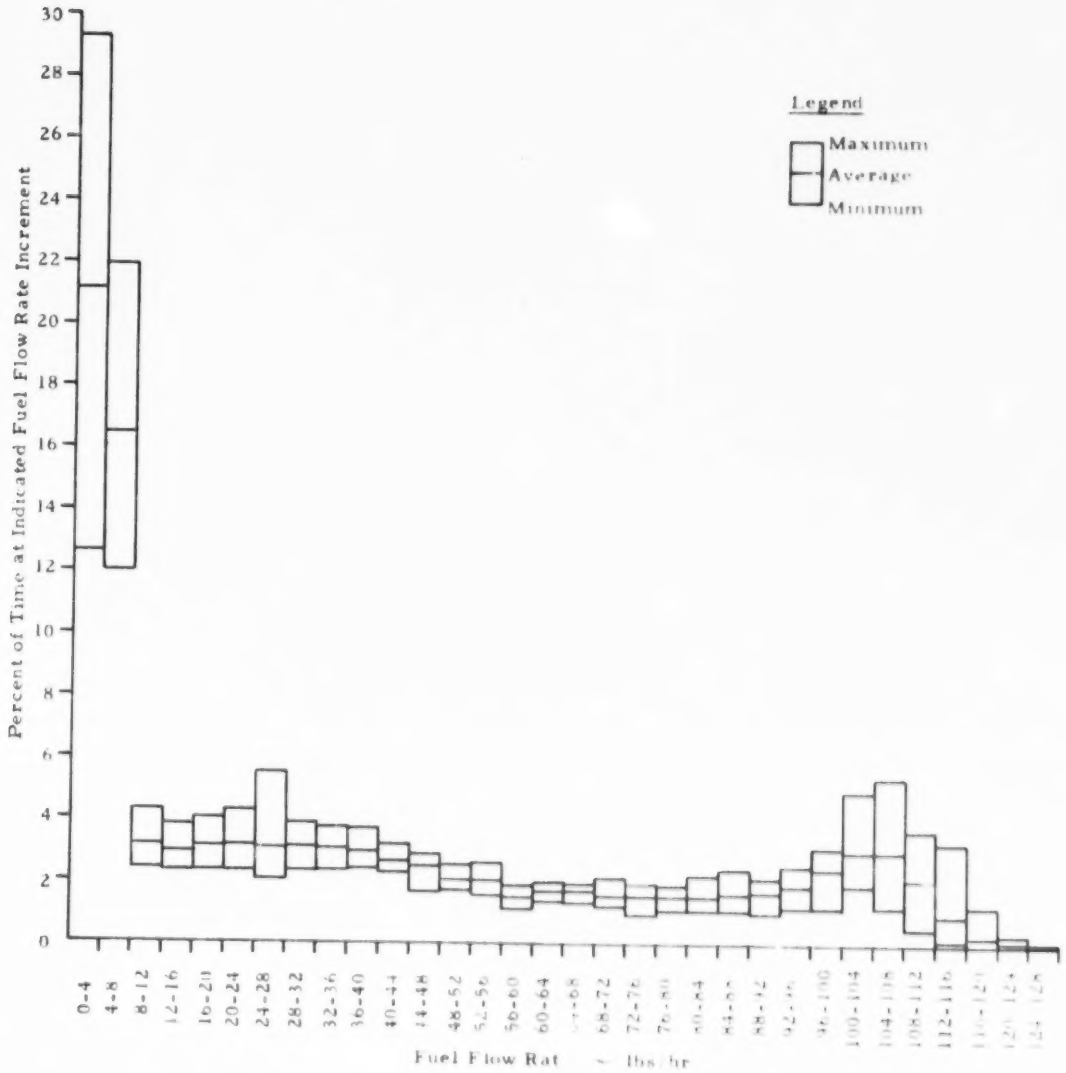

FIGURE E-29. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-9

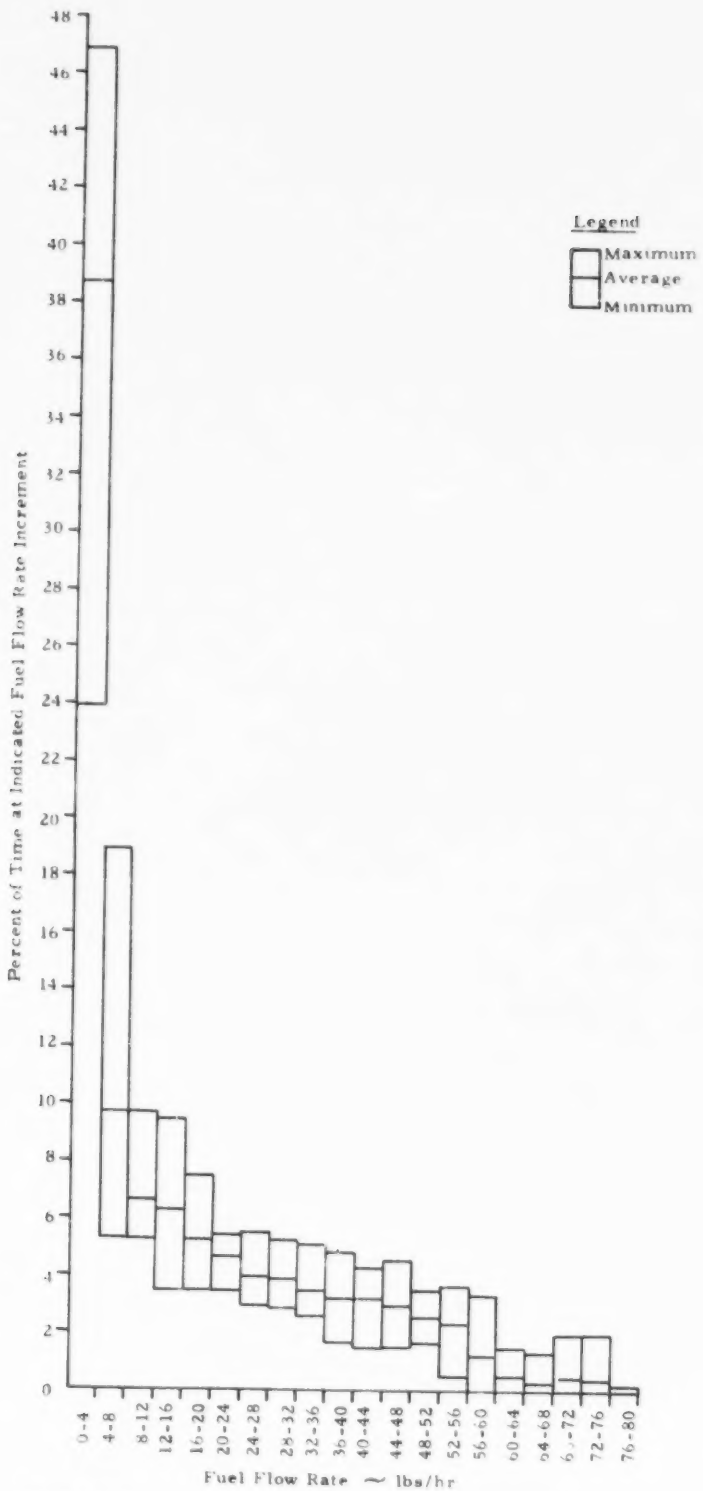

FIGURE E-30. TIME SPENT AT VARIOUS FUEL FLOW RATES DURING S.A.R.R. TESTS, TRUCK D-10

APPENDIX F

ADDITIONAL ROAD PARAMETRIC RESULTS FROM 25 HD GASOLINE POWERED TRUCKS 1972-1973[8]

TABLE F-1. LISTING OF AVERAGE ROAD OPERATIONAL DATA FROM 25 GASOLINE TRUCK MASS EMISSION PROJECT

Truck No.	Run No.	Vehicle Speed, mph	Engine Speed, rpm	Intake Vac., in. Hg.
1	1*	18.4	1716	16.8
	3*	21.2	1826	16.5
	2	20.5	1836	16.6
	4	18.5	1636	16.2
	5	17.8	1583	17.0
	1	19.4	1611	15.5
	3	16.5	1477	16.4
	4	19.9	1585	14.8
	5	17.9	1566	15.8
2	4*	17.1	1643	15.7
	5*	17.3	1665	15.6
	6*	-	1482	16.4
	1	-	1588	14.8
	2	-	1642	15.2
	3	-	1713	14.7
3	2*	16.5	1579	14.0
	1	15.9	1415	14.1
	3	17.5	1492	14.5
	4	19.0	1709	13.5
	5	16.4	1586	14.6
	6	18.0	1550	14.5
4	1*	22.3	1747	11.0
	2*	20.3	1638	12.0
	1	18.6	1536	12.1
	2	18.5	1567	11.7
	3	22.3	1755	11.3
	5	21.8	1665	11.3
5	2*	22.5	1879	12.3
6	3*	19.5	1758	12.7
	4*	16.4	1597	13.0
	1	15.9	1750	12.6
	2	17.0	1579	12.7
	5	19.9	1758	12.2
6 Cont'd.	6	18.5	1796	12.6
	1	21.1	1756	11.9
	2	21.1	1882	12.7
	3	22.0	1724	12.5
	1	17.8	1850	11.9
	2	21.1	1883	12.4
	3	20.8	1771	12.6
	4	18.8	1758	12.4
7	5*	21.3	1472	13.9
8	1*	22.4	1686	12.4
	2*	19.5	1601	13.3
	4	19.6	1600	12.9
	5	21.8	1641	12.3
	6	19.5	1536	13.4
	1	20.6	1550	13.0
	2	20.4	1486	13.0
	3	20.4	1551	13.4
9	5*	20.5	1565	11.3
	6*	18.8	1471	11.2
	1	18.8	1433	11.2
	2	20.7	1573	11.7
10	2*	21.0	1704	13.9
	3*	23.4	1572	13.7
	1	18.0	1485	14.8
	2	21.3	1462	13.7
	1	23.8	1565	13.0
	2	25.1	1563	12.8
	3	16.8	1579	14.5
	4	21.3	1472	13.9
11	1*	22.7	1689	14.0
	2*	23.3	1951	13.7
	3	21.9	1696	14.1
	1	22.0	1883	13.4

*From Reference 8.

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TABLE F-1 (Cont'd.) LISTING OF AVERAGE ROAD OPERATIONAL DATA FROM 25 GASOLINE TRUCK MASS EMISSION PROJECT

Truck No.	Run No.	Vehicle Speed, mph	Engine Speed, rpm	Intake Vac., in. Hg.
11	2	22.6	1784	13.4
Cont'd.	3	22.2	1743	13.5
	4	23.2	1899	13.5
	5	21.5	1700	13.4
	6	20.9	1685	13.8
12	1*	18.6	1537	12.0
	2*	20.8	1612	12.2
	1	21.0	1695	11.7
	2	23.1	1739	11.1
	1	19.2	1633	12.0
	1	21.8	1702	11.8
	2	22.2	1796	10.7
	3	20.0	1622	12.1
13	1*	17.9	1430	13.2
	2*	17.8	1413	12.5
	1	17.6	1427	13.3
	2	17.8	1414	12.4
	3	20.4	1547	13.0
	1	21.0	1507	12.5
	2	20.9	1558	12.7
	1	19.9	1359	12.8
	2	18.3	1539	13.7
14	2*	18.1	1788	13.5
	1*	19.2	1697	11.8
	1	18.8	1585	13.1
	2	20.0	1914	13.0
	3	18.4	1705	13.8
	3	18.7	1795	11.8
15	5*	25.9	1683	11.2
16	8*	17.9	1635	11.9
	9*	16.8	1486	12.4
	10	18.3	1714	11.6
17	1*	18.3	1611	13.9
	2	17.5	1407	13.1
	3	17.9	1411	13.0
17	4	18.9	1459	12.8
Cont'd.	5	18.4	1488	13.2
	8	19.0	1626	14.0
18	3*	20.8	1716	12.8
	2*	17.0	1631	14.1
	1	19.8	1683	13.6
	4	19.0	1559	13.6
	5	18.5	1594	13.9
	7	17.1	1465	14.2
	8	16.4	1372	13.9
	9	16.1	1440	14.3
19	1*	-	1732	13.8
	2*	19.6	1696	13.6
	3	18.8	1716	14.3
	4	20.8	1816	14.3
	5	19.4	1769	14.6
	6	20.4	1731	14.2
	7	19.2	1706	13.7
	8	19.7	1702	13.7
	9	20.0	1777	13.1
20	5*	18.1	1779	13.0
	6*	18.4	1696	12.9
	1	18.1	-	12.8
	2	17.9	-	13.0
	3	18.8	1681	13.0
	4	17.5	1677	13.7
	7	19.5	1797	12.5
21	1*	18.2	1868	12.1
	2	16.8	1622	12.4
	3	17.6	1856	12.7
22	2*	23.5	1909	13.6
	3	24.5	1971	13.3
	4	22.2	2072	14.6
	5	20.4	1899	14.7
	6	20.7	2038	14.7
	7	20.6	2017	14.5
	8	23.9	2051	14.1

TABLE F-1 (Cont'd). LISTING OF AVERAGE ROAD OPERATIONAI DATA FROM 25 GASOLINE TRUCK MASS EMISSION PROJECT

Truck No.	Run No.	Vehicle Speed, mph	Engine Speed, rpm	Intake Vac., in. Hg.	Truck No.	Run No.	Vehicle Speed, mph	Engine Speed, rpm	Intake Vac., in.
23	1*	-	-	-					
	2*	18.1	1783	12.3					
	4	18.6	1969	13.4					
	5	18.2	1882	13.7					
	6	19.0	1958	12.7					
	7	19.4	1998	12.2					
24	2*	17.9	1651	13.9					
	1	16.7	1608	14.1					
	3	16.6	1558	14.2					
	4	18.8	1817	13.8					
	5	16.8	1782	14.4					
	6	18.9	2005	13.3					
	7	20.4	1678	13.6					
25	3*	19.2	1862	13.0					
	7*	20.0	1566	13.4					
	1	20.0	1970	13.0					
	2	-	1770	13.1					
	6	20.8	1718	13.6					
	8	20.0	1566	13.4					
	9	19.0	1548	13.8					
	10	19.8	1648	13.9					

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 1

1971 IHC 16,000 LB GVW VAN
WITH 345 CID V8 ENGINE

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TABLE F-2. 1971 IHC 16,000-LB GVW VAN, 345 CID V8, TRUCK 1, 02/27/72, Run 2

RUN DURATION 18.79 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1836.1453	604.5396	5.9166	10440	3395.0000	5.0000	3390.0000
MV	2	16.6425	6.3150	.0618	10440	24.9750	.0000	24.9750
SPD	3	20.5005	11.0930	.1086	10440	47.4667	.0000	47.4667
TP	4	5.2251	.7425	.0073	10440	7.8400	3.3900	4.4500

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	46	.44
WOT	1355	12.98

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	570	21.84
3	761	29.16
4	1271	48.70
5	4	.15
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	34	.33
1. - 2.	12	.11
2. - 3.	180	1.72
3. - 4.	90	.86
4. - 5.	139	1.33
5. - 6.	205	1.96
6. - 7.	186	1.78
7. - 8.	305	2.92
8. - 9.	453	4.34
9. - 10.	702	6.72
10. - 11.	236	2.26
11. - 12.	261	2.50
12. - 13.	311	2.98
13. - 14.	220	2.11
14. - 15.	315	3.02
15. - 16.	510	4.89
16. - 17.	510	4.89
17. - 18.	736	7.05
18. - 19.	423	4.05
19. - 20.	591	5.66
20. - 21.	854	8.18
21. - 22.	451	4.32
22. - 23.	427	4.09
23. - 24.	954	9.14
24. - 25.	1335	12.79
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	598	5.73
2. - 4.	151	1.45
4. - 6.	155	1.48
6. - 8.	279	2.67
8. - 10.	433	4.15
10. - 12.	562	5.38
12. - 14.	636	6.09
14. - 16.	750	7.18
16. - 18.	746	7.15
18. - 20.	934	8.95
20. - 22.	977	9.36
22. - 24.	798	7.64
24. - 26.	1011	9.68
26. - 28.	556	5.33
28. - 30.	410	3.93
30. - 32.	167	1.60
32. - 34.	105	1.01
34. - 36.	25	.24
36. - 38.	28	.27
38. - 40.	44	.42
40. - 42.	77	.74
42. - 44.	428	4.10
44. - 46.	482	4.62
46. - 48.	88	.84
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	8	.08
200. - 400.	7	.07
400. - 600.	9	.09
600. - 800.	230	2.20
800. - 1000.	797	7.63
1000. - 1200.	357	3.42
1200. - 1400.	920	8.81
1400. - 1600.	1338	12.82
1600. - 1800.	1833	17.56
1800. - 2000.	1312	12.57
2000. - 2200.	997	9.55
2200. - 2400.	657	6.29
2400. - 2600.	473	4.53
2600. - 2800.	346	3.31
2800. - 3000.	916	8.77
3000. - 3200.	195	1.87
3200. - 3400.	45	.43
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-3. 1971 IHC 16,000-LB GVW VAN, 345 CID V8, TRUCK 1, 1/27/72, RUN 4

RUN DURATION 23.05 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1636.2026	678.8474	6.0821	12792	3490.0000	410.0000	3080.0000
MV	2	16.2453	6.3101	.0558	12792	24.9750	.0000	24.9750
SPD	3	18.5121	14.4205	.1275	12792	55.6667	-1.0667	56.7333
TP	4	5.1163	.7678	.0068	12792	7.9000	2.8000	5.1000

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	59	.46
WOT	1236	9.66

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	1106	34.58
3	788	24.64
4	1297	40.56
5	5	.16
6	0	.00
7	2	.06

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	101	.79
1. - 2.	13	.10
2. - 3.	197	1.54
3. - 4.	221	1.73
4. - 5.	171	1.34
5. - 6.	281	2.20
6. - 7.	456	3.56
7. - 8.	326	2.55
8. - 9.	405	3.17
9. - 10.	483	3.78
10. - 11.	483	3.78
11. - 12.	504	3.94
12. - 13.	362	2.83
13. - 14.	433	3.38
14. - 15.	335	2.62
15. - 16.	360	2.81
16. - 17.	533	4.17
17. - 18.	409	3.20
18. - 19.	353	2.76
19. - 20.	1386	10.83
20. - 21.	2327	18.19
21. - 22.	314	2.45
22. - 23.	466	3.64
23. - 24.	834	6.52
24. - 25.	1039	8.12
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2771	21.66
2. - 4.	306	2.39
4. - 6.	261	2.04
6. - 8.	319	2.49
8. - 10.	417	3.26
10. - 12.	375	2.93
12. - 14.	450	3.52
14. - 16.	640	5.00
16. - 18.	449	3.51
18. - 20.	726	5.68
20. - 22.	659	5.15
22. - 24.	530	4.14
24. - 26.	814	6.36
26. - 28.	876	6.85
28. - 30.	924	7.22
30. - 32.	547	4.28
32. - 34.	343	2.68
34. - 36.	55	.43
36. - 38.	41	.32
38. - 40.	32	.25
40. - 42.	27	.21
42. - 44.	24	.19
44. - 46.	104	.81
46. - 48.	229	1.79
48. - 50.	487	3.81
50. - 52.	203	1.59
52. - 54.	41	.32
54. - 56.	51	.40
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	37	.29
600. - 800.	470	3.67
800. - 1000.	2955	23.10
1000. - 1200.	530	4.14
1200. - 1400.	770	6.02
1400. - 1600.	1530	11.96
1600. - 1800.	1672	13.07
1800. - 2000.	1572	12.29
2000. - 2200.	857	6.70
2200. - 2400.	446	3.49
2400. - 2600.	356	2.78
2600. - 2800.	437	3.42
2800. - 3000.	666	5.21
3000. - 3200.	393	3.07
3200. - 3400.	89	.70
3400. - 3600.	12	.09
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-4. 1971 IHC 16,000-LB GVW VAN, 345 CID V8, TRUCK 1, 01/27/72, RUN 5

RUN DURATION 24.05 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1583.2451	644.4655	5.5807	13336	3830.0000	400.0000	3430.0000
MV	2	16.9646	5.4278	.0470	13336	24.9750	.0000	24.9750
SPD	3	17.8041	11.7941	.1021	13336	48.7333	.0000	48.7333
TP	4	5.0161	.5949	.0052	13336	6.8800	3.6500	3.2300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	34	.25
NOT	431	3.23

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	1059	31.76
3	997	29.90
4	276	38.27
5	0	.00
6	0	.00
7	2	.06

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	2	.01
1. - 2.	0	.00
2. - 3.	125	.94
3. - 4.	170	1.27
4. - 5.	237	1.78
5. - 6.	214	1.60
6. - 7.	259	1.94
7. - 8.	183	1.37
8. - 9.	291	2.18
9. - 10.	317	2.38
10. - 11.	421	3.16
11. - 12.	503	3.77
12. - 13.	293	2.20
13. - 14.	454	3.40
14. - 15.	445	3.34
15. - 16.	442	3.31
16. - 17.	695	5.21
17. - 18.	880	6.60
18. - 19.	755	5.66
19. - 20.	2812	21.09
20. - 21.	1499	11.24
21. - 22.	332	2.49
22. - 23.	399	2.99
23. - 24.	746	5.59
24. - 25.	862	6.46
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	2339	17.54
2. - 4.	286	2.14
4. - 6.	217	1.63
6. - 8.	334	2.50
8. - 10.	395	2.96
10. - 12.	484	3.63
12. - 14.	684	5.13
14. - 16.	634	4.75
16. - 18.	941	7.06
18. - 20.	953	7.15
20. - 22.	721	5.41
22. - 24.	972	7.29
24. - 26.	1134	8.50
26. - 28.	1142	8.56
28. - 30.	621	4.66
30. - 32.	477	3.58
32. - 34.	121	.91
34. - 36.	85	.64
36. - 38.	84	.63
38. - 40.	86	.64
40. - 42.	81	.61
42. - 44.	56	.42
44. - 46.	291	2.18
46. - 48.	152	1.14
48. - 50.	46	.34
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	26	.19
600. - 800.	905	6.79
800. - 1000.	2872	21.54
1000. - 1200.	435	3.26
1200. - 1400.	1098	8.23
1400. - 1600.	1616	12.12
1600. - 1800.	1743	13.07
1800. - 2000.	1644	12.33
2000. - 2200.	714	5.35
2200. - 2400.	491	3.68
2400. - 2600.	559	4.19
2600. - 2800.	513	3.85
2800. - 3000.	566	4.24
3000. - 3200.	67	.50
3200. - 3400.	42	.31
3400. - 3600.	21	.16
3600. - 3800.	21	.16
3800. - 4000.	3	.02
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-7. 1971 IHC 6,000-LB GVW VAN, 345 CID V8, TRUCK 1, 01/28/72, RUN 1

RUN DURATION 19.19 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1611.1604	3203.6055	31.1279	10592	163835.0000	380.0000	163455.0000
MV	2	15.4697	17.2598	.1677	10592	819.1749	1.3250	817.8500
SPD	3	19.3582	11.0850	.1077	10592	60.6667	.0000	60.6667
TP	4	5.4073	6.3204	.0614	10592	327.6700	3.3000	324.3700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	13	.12
NOT	1409	13.30

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	486	18.35
3	420	15.86
4	1730	65.33
5	5	.19
6	0	.00
7	6	.23

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	0	.00
1. - 2.	223	2.11
2. - 3.	415	3.92
3. - 4.	329	3.11
4. - 5.	438	4.14
5. - 6.	576	5.44
6. - 7.	276	2.61
7. - 8.	327	3.09
8. - 9.	261	2.46
9. - 10.	297	2.80
10. - 11.	306	2.89
11. - 12.	284	2.68
12. - 13.	268	2.53
13. - 14.	259	2.45
14. - 15.	285	2.69
15. - 16.	379	3.58
16. - 17.	407	3.84
17. - 18.	258	2.44
18. - 19.	252	2.38
19. - 20.	377	3.56
20. - 21.	1206	11.39
21. - 22.	967	9.13
22. - 23.	597	5.64
23. - 24.	1075	10.15
24. - 25.	526	4.97
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	947	8.94
2. - 4.	300	2.83
4. - 6.	238	2.25
6. - 8.	301	2.84
8. - 10.	363	3.43
10. - 12.	436	4.12
12. - 14.	684	6.46
14. - 16.	646	6.10
16. - 18.	845	7.98
18. - 20.	633	5.98
20. - 22.	821	7.75
22. - 24.	935	8.83
24. - 26.	639	6.03
26. - 28.	1143	10.79
28. - 30.	392	3.70
30. - 32.	47	.44
32. - 34.	39	.37
34. - 36.	35	.33
36. - 38.	48	.45
38. - 40.	322	3.04
40. - 42.	557	5.26
42. - 44.	219	2.07
44. - 46.	0	.00
46. - 48.	0	.00
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	1	.01
400. - 600.	39	.37
600. - 800.	223	2.11
800. - 1000.	2087	19.70
1000. - 1200.	1013	9.56
1200. - 1400.	1218	11.50
1400. - 1600.	1391	13.13
1600. - 1800.	1632	15.41
1800. - 2000.	1081	10.21
2000. - 2200.	326	3.08
2200. - 2400.	282	2.66
2400. - 2600.	413	3.90
2600. - 2800.	778	7.35
2800. - 3000.	97	.92
3000. - 3200.	7	.07
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-6. 1971 IHC 16,000-LB GVW VAN, 345 CID V8, TRUCK 1, 01/28/72, RUN 3

RUN DURATION 22.60 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1476.5371	549.7627	4.9402	12384	3230.0000	165.0000	3065.0000
MV	2	16.4202	6.8190	.0613	12384	24.8750	.9250	23.9500
SPD	3	16.4892	11.4144	.1026	12384	40.4000	.0000	40.4000
TP	4	5.2050	.8468	.0076	12384	7.8300	2.6100	5.2200

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	192	1.55
WOT	1578	12.74

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	1071	34.59
3	398	12.86
4	1616	52.20
5	1	.03
6	0	.00
7	10	.32

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	3	.02
1. - 2.	351	2.83
2. - 3.	261	2.11
3. - 4.	245	1.98
4. - 5.	270	2.18
5. - 6.	257	2.08
6. - 7.	412	3.33
7. - 8.	441	3.56
8. - 9.	309	2.50
9. - 10.	241	1.95
10. - 11.	313	2.53
11. - 12.	310	2.50
12. - 13.	331	2.67
13. - 14.	269	2.17
14. - 15.	312	2.52
15. - 16.	315	2.54
16. - 17.	343	2.77
17. - 18.	306	2.47
18. - 19.	485	3.92
19. - 20.	501	4.05
20. - 21.	2703	21.83
21. - 22.	670	5.41
22. - 23.	837	6.76
23. - 24.	1443	11.65
24. - 25.	456	3.68
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2367	19.11
2. - 4.	326	2.63
4. - 6.	276	2.23
6. - 8.	376	3.04
8. - 10.	547	4.42
10. - 12.	511	4.13
12. - 14.	494	3.99
14. - 16.	705	5.69
16. - 18.	736	5.94
18. - 20.	683	5.52
20. - 22.	1481	11.96
22. - 24.	978	7.90
24. - 26.	626	5.05
26. - 28.	428	3.46
28. - 30.	278	2.24
30. - 32.	273	2.20
32. - 34.	82	.66
34. - 36.	223	1.80
36. - 38.	564	4.55
38. - 40.	403	3.25
40. - 42.	27	.22
42. - 44.	0	.00
44. - 46.	0	.00
46. - 48.	0	.00
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	1	.01
200. - 400.	13	.10
400. - 600.	75	.61
600. - 800.	366	2.96
800. - 1000.	2729	22.04
1000. - 1200.	1147	9.26
1200. - 1400.	1712	13.82
1400. - 1600.	1921	15.51
1600. - 1800.	1355	10.94
1800. - 2000.	767	6.19
2000. - 2200.	559	4.51
2200. - 2400.	509	4.11
2400. - 2600.	968	7.82
2600. - 2800.	174	1.41
2800. - 3000.	61	.49
3000. - 3200.	25	.20
3200. - 3400.	2	.02
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-7. 1971 IHC 16,000-LB GVW VAN, 345 CID V8, TRUCK 1, 01/26/72, RUN 4

RUN DURATION 18.51 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1584.9717	600.3679	5.9248	10268	3460.0000	315.0000	3145.0000
MV	2	14.8408	7.7550	.0765	10268	2..9500	.5750	24.3750
SPD	3	19.8738	11.2108	.1106	10268	44.0667	.0667	44.0000
TP	4	5.3645	.9622	.0095	10268	7.9000	1.9500	5.9500

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	73	.71
WOT	1838	17.90

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	381	14.84
3	485	18.89
4	1697	66.11
5	2	.08
6	1	.04
7	1	.04

PERCENT OF TIME MV AT LEVEL <	COUNT	PERCENT
. - 1.	3	.03
1. - 2.	343	3.34
2. - 3.	460	4.48
3. - 4.	672	6.54
4. - 5.	289	2.81
5. - 6.	259	2.52
6. - 7.	579	5.64
7. - 8.	382	3.72
8. - 9.	229	2.23
9. - 10.	209	2.04
10. - 11.	222	2.16
11. - 12.	169	1.65
12. - 13.	282	2.75
13. - 14.	199	1.94
14. - 15.	152	1.48
15. - 16.	201	1.96
16. - 17.	402	3.92
17. - 18.	406	3.95
18. - 19.	257	2.50
19. - 20.	265	2.58
20. - 21.	1329	12.94
21. - 22.	684	6.66
22. - 23.	481	4.68
23. - 24.	1024	9.97
24. - 25.	770	7.50
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL <	COUNT	PERCENT
. - 2.	914	8.90
2. - 4.	221	2.15
4. - 6.	182	1.77
6. - 8.	323	3.15
8. - 10.	538	5.24
10. - 12.	371	3.61
12. - 14.	481	4.68
14. - 16.	595	5.79
16. - 18.	712	6.93
18. - 20.	585	5.70
20. - 22.	1048	10.21
22. - 24.	646	6.29
24. - 26.	674	6.56
26. - 28.	969	9.44
28. - 30.	429	4.18
30. - 32.	306	2.98
32. - 34.	39	.38
34. - 36.	121	1.18
36. - 38.	262	2.55
38. - 40.	231	2.25
40. - 42.	157	1.53
42. - 44.	456	4.44
44. - 46.	8	.08
46. - 48.	0	.00
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	5	.05
400. - 600.	55	.54
600. - 800.	264	2.57
800. - 1000.	2033	19.80
1000. - 1200.	864	8.41
1200. - 1400.	1033	10.06
1400. - 1600.	1238	12.06
1600. - 1800.	1467	14.29
1800. - 2000.	1104	10.75
2000. - 2200.	442	4.30
2200. - 2400.	332	3.23
2400. - 2600.	623	6.07
2600. - 2800.	378	3.68
2800. - 3000.	380	3.70
3000. - 3200.	33	.32
3200. - 3400.	12	.12
3400. - 3600.	5	.05
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-8. 1971 IHC 16,000-LB GVW VAN, 345 CID V8, TRUCK 1, 01/28/72, RUN 5

RUN DURATION 20.64 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1566.2175	635.3718	6.2569	10312	3520.0000	.0000	3520.0000
MV	2	15.8263	7.4339	.0732	10312	24.9750	.0000	24.9750
SPD	3	17.9269	12.6325	.1244	10312	46.1333	.0667	46.0667
TP	4	5.2979	.9493	.0093	10312	8.0000	2.9400	5.0600

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	33	.32
WOT	2073	20.10

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	29	1.12
2	796	30.88
3	465	18.04
4	1286	49.88
5	0	.00
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	55	.53
1. - 2.	123	1.19
2. - 3.	424	4.11
3. - 4.	368	3.57
4. - 5.	338	3.28
5. - 6.	350	3.39
6. - 7.	535	5.19
7. - 8.	369	3.58
8. - 9.	226	2.19
9. - 10.	162	1.57
10. - 11.	192	1.86
11. - 12.	154	1.49
12. - 13.	176	1.71
13. - 14.	183	1.77
14. - 15.	215	2.08
15. - 16.	227	2.20
16. - 17.	256	2.48
17. - 18.	298	2.89
18. - 19.	363	3.52
19. - 20.	303	2.94
20. - 21.	1898	18.41
21. - 22.	651	6.31
22. - 23.	556	5.39
23. - 24.	1311	12.71
24. - 25.	579	5.61
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1806	17.51
2. - 4.	306	2.97
4. - 6.	270	2.62
6. - 8.	212	2.06
8. - 10.	320	3.10
10. - 12.	428	4.15
12. - 14.	575	5.58
14. - 16.	603	5.85
16. - 18.	523	5.07
18. - 20.	620	6.01
20. - 22.	679	6.58
22. - 24.	851	8.25
24. - 26.	805	7.81
26. - 28.	658	6.38
28. - 30.	293	2.84
30. - 32.	158	1.53
32. - 34.	42	.41
34. - 36.	75	.73
36. - 38.	90	.87
38. - 40.	79	.77
40. - 42.	195	1.89
42. - 44.	243	2.36
44. - 46.	474	4.60
46. - 48.	7	.07
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	43	.42
200. - 400.	12	.12
400. - 600.	35	.34
600. - 800.	298	2.89
800. - 1000.	2175	21.09
1000. - 1200.	819	7.94
1200. - 1400.	1029	9.98
1400. - 1600.	1641	15.91
1600. - 1800.	1184	11.48
1800. - 2000.	881	8.54
2000. - 2200.	339	3.29
2200. - 2400.	414	4.01
2400. - 2600.	388	3.76
2600. - 2800.	403	3.91
2800. - 3000.	557	5.40
3000. - 3200.	59	.57
3200. - 3400.	30	.29
3400. - 3600.	5	.05
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 2

1970 CHEVROLET 18,000 LB GVW VAN
WITH 350 CID V8 ENGINE

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TABLE F-9.

1970 CHEVROLET 18000 LB GVW VAN 350 CID V8 TRUCK 2 02/09/72 RUN 1
RUN DURATION 19.83 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1588.0017	727.7830	6.6582	11948	3690.0000	.0000	3690.0000
MV	2	14.8293	16.6077	.1519	11948	819.1749	.0000	819.1749
TP	4	1.8116	.9896	.0091	11948	6.4100	.9300	5.4800

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	7	.06
WOT	236	1.98

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	3	.10
2	764	25.58
3	679	22.73
4	1534	51.36
5	3	.10
6	0	.00
7	3	.10

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	949	7.94
1. - 2.	182	1.52
2. - 3.	204	1.71
3. - 4.	175	1.46
4. - 5.	303	2.54
5. - 6.	324	2.71
6. - 7.	340	2.85
7. - 8.	418	3.50
8. - 9.	356	2.98
9. - 10.	370	3.10
10. - 11.	395	3.31
11. - 12.	301	2.52
12. - 13.	347	2.90
13. - 14.	398	3.33
14. - 15.	389	3.26
15. - 16.	416	3.48
16. - 17.	536	4.49
17. - 18.	472	3.95
18. - 19.	333	2.79
19. - 20.	462	3.87
20. - 21.	1582	13.24
21. - 22.	619	5.18
22. - 23.	307	2.57
23. - 24.	504	4.22
24. - 25.	1262	10.56
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	7	.06
200. - 400.	90	.75
400. - 600.	567	4.75
600. - 800.	1978	16.56
800. - 1000.	480	4.02
1000. - 1200.	528	4.42
1200. - 1400.	1138	9.52
1400. - 1600.	1394	11.67
1600. - 1800.	1424	11.92
1800. - 2000.	1123	9.40
2000. - 2200.	787	6.59
2200. - 2400.	744	6.23
2400. - 2600.	476	3.98
2600. - 2800.	267	2.23
2800. - 3000.	412	3.45
3000. - 3200.	391	3.27
3200. - 3400.	94	.79
3400. - 3600.	44	.37
3600. - 3800.	4	.03
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-10.

1970 CHEVROLET 18000 LB GVW VAN 350 CID V8 TRUCK 2 02/09/72 RUN 2
RUN DURATION 20.09 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1641.5535	650.8014	6.3307	10568	3585.0000	390.0000	3195.0000
MV	2	15.1862	8.2697	.0804	10568	24.9750	.0000	24.9750
TP	4	2.0163	1.2818	.0125	10568	6.4500	.7700	5.6800

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	11	.10
WOT	561	5.31

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	651	24.64
3	392	14.84
4	1588	60.11
5	0	.00
6	0	.00
7	11	.42

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	511	4.84
1. - 2.	627	5.93
2. - 3.	360	3.41
3. - 4.	212	2.01
4. - 5.	224	2.12
5. - 6.	211	2.00
6. - 7.	229	2.17
7. - 8.	273	2.58
8. - 9.	367	3.47
9. - 10.	316	2.99
10. - 11.	198	1.87
11. - 12.	277	2.62
12. - 13.	270	2.55
13. - 14.	252	2.38
14. - 15.	267	2.53
15. - 16.	226	2.14
16. - 17.	135	1.28
17. - 18.	167	1.58
18. - 19.	208	1.97
19. - 20.	220	2.08
20. - 21.	618	5.85
21. - 22.	1645	15.57
22. - 23.	599	5.67
23. - 24.	990	9.37
24. - 25.	1166	11.03
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	1	.01
400. - 600.	52	.49
600. - 800.	723	6.84
800. - 1000.	1593	15.07
1000. - 1200.	588	5.56
1200. - 1400.	773	7.31
1400. - 1600.	1774	16.79
1600. - 1800.	1414	13.38
1800. - 2000.	1039	9.83
2000. - 2200.	521	4.93
2200. - 2400.	408	3.86
2400. - 2600.	378	3.58
2600. - 2800.	604	5.72
2800. - 3000.	499	4.72
3000. - 3200.	114	1.08
3200. - 3400.	46	.44
3400. - 3600.	41	.39
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-11.

1970 CHEVROLET 18000 LB GVW VAN 350 CID V8 TRUCK 2 02/09/72 RUN 3
RUN DURATION 19.34 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1712.9617	617.6844	5.9636	10728	3760.0000	.0000	3760.0000
MV	2	14.6633	8.1875	.0790	10728	24.9750	.0000	24.9750
TP	4	1.8024	.9120	.0088	10728	6.1700	.9500	5.2200

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	2	.02
WOT	143	1.33

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	16	.60
2	480	17.90
3	618	23.04
4	1565	58.35
5	1	.04
6	0	.00
7	2	.07

PERCENT OF TIME MV AT LEVEL <	COUNT	PERCENT
. - 1.	792	7.38
1. - 2.	173	1.61
2. - 3.	319	2.97
3. - 4.	306	2.85
4. - 5.	356	3.32
5. - 6.	307	2.86
6. - 7.	345	3.22
7. - 8.	363	3.38
8. - 9.	278	2.59
9. - 10.	305	2.84
10. - 11.	270	2.52
11. - 12.	221	2.06
12. - 13.	281	2.62
13. - 14.	306	2.85
14. - 15.	278	2.59
15. - 16.	279	2.60
16. - 17.	459	4.28
17. - 18.	384	3.58
18. - 19.	276	2.57
19. - 20.	300	2.80
20. - 21.	333	3.10
21. - 22.	1273	11.87
22. - 23.	333	3.10
23. - 24.	570	5.31
24. - 25.	1621	15.11
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME RPM AT LEVEL <	COUNT	PERCENT
. - 200.	23	.21
200. - 400.	5	.05
400. - 600.	38	.35
600. - 800.	561	5.23
800. - 1000.	1028	9.58
1000. - 1200.	433	4.04
1200. - 1400.	867	8.08
1400. - 1600.	1981	18.47
1600. - 1800.	1727	16.10
1800. - 2000.	1162	10.83
2000. - 2200.	643	5.99
2200. - 2400.	493	4.60
2400. - 2600.	571	5.32
2600. - 2800.	401	3.74
2800. - 3000.	609	5.68
3000. - 3200.	122	1.14
3200. - 3400.	34	.32
3400. - 3600.	20	.19
3600. - 3800.	10	.09
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 3

1972 IHC 19,000-LB GVW VAN
WITH 304 CID V-8 ENGINE

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TABLE F-12.

1972 IHC 19000 LB. GVW VAN WITH 304 CID V8 TRUCK 3 2/25/72 RUN 1
RUN DURATION 24.40 MIN. IDLE SPEED 475 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1414.5115	662.1780	25.0998	696	2850.0000	25.0000	2825.0000
MV	2	14.0966	7.3864	.2800	696	24.5000	.1250	24.3750
SPD	3	15.8790	11.2559	.4267	696	46.0000	.3333	45.6667

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0 - 1	36	5.17
1 - 2	21	3.02
2 - 3	42	6.03
3 - 4	20	2.87
4 - 5	9	1.29
5 - 6	12	1.72
6 - 7	22	3.16
7 - 8	16	2.30
8 - 9	17	2.44
9 - 10	10	1.44
10 - 11	17	2.44
11 - 12	17	2.44
12 - 13	18	2.59
13 - 14	17	2.44
14 - 15	13	1.87
15 - 16	19	2.73
16 - 17	18	2.59
17 - 18	158	22.70
18 - 19	19	2.73
19 - 20	28	4.02
20 - 21	19	2.73
21 - 22	30	4.31
22 - 23	62	8.91
23 - 24	50	7.18
24 - 25	6	.86
25 - 26	0	0.00
26 - 27	0	0.00
27 - 28	0	0.00
28 - 29	0	0.00
29 - 30	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0 - 2	92	13.22
2 - 4	14	2.01
4 - 6	22	3.16
6 - 8	26	3.74
8 - 10	42	6.03
10 - 12	56	8.05
12 - 14	53	7.61
14 - 16	63	9.05
16 - 18	58	8.33
18 - 20	64	9.20
20 - 22	58	8.33
22 - 24	36	5.17
24 - 26	32	4.60
26 - 28	7	1.01
28 - 30	5	.72
30 - 32	3	.43
32 - 34	2	.29
34 - 36	2	.29
36 - 38	2	.29
38 - 40	2	.29
40 - 42	11	1.58
42 - 44	22	3.16
44 - 46	16	2.30
46 - 48	8	1.15
48 - 50	0	0.00
50 - 52	0	0.00
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0 - 200	15	2.16
200 - 400	14	2.01
400 - 600	51	7.33
600 - 800	81	11.64
800 - 1000	12	1.72
1000 - 1200	49	7.04
1200 - 1400	111	15.95
1400 - 1600	118	16.95
1600 - 1800	57	8.19
1800 - 2000	59	8.48
2000 - 2200	39	5.60
2200 - 2400	19	2.73
2400 - 2600	22	3.16
2600 - 2800	36	5.17
2800 - 3000	13	1.87
3000 - 3200	0	0.00
3200 - 3400	0	0.00
3400 - 3600	0	0.00
3600 - 3800	0	0.00
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	0	0.00
4400 - 4600	0	0.00
4600 - 4800	0	0.00
4800 - 5000	0	0.00

TABLE E-13.

1972 IHC 19000 LB. GVW VAN WITH 304 CID V8 TRUCK 3 2/25/72 RUN 3
RUN DURATION 22.23 MIN. IDLE SPEED 475 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1492.0635	606.2838	24.1549	630	3150.0000	450.0000	2700.0000
MV	2	14.5159	7.7538	.3089	630	24.6250	.1250	24.5000
SPD	3	17.5026	11.8705	.4729	630	47.3333	.3333	47.0000

PERCENT OF TIME MV AT

LEVEL			COUNT	PERCENT
	<			
0 -	1		51	8.10
1 -	2		18	2.86
2 -	3		17	2.70
3 -	4		16	2.54
4 -	5		10	1.59
5 -	6		14	2.22
6 -	7		14	2.22
7 -	8		15	2.38
8 -	9		19	3.02
9 -	10		9	1.43
10 -	11		18	2.86
11 -	12		13	2.06
12 -	13		13	2.06
13 -	14		15	2.38
14 -	15		6	.95
15 -	16		14	2.22
16 -	17		13	2.06
17 -	18		124	19.68
18 -	19		28	4.44
19 -	20		16	2.54
20 -	21		22	3.49
21 -	22		21	3.33
22 -	23		54	8.57
23 -	24		82	13.02
24 -	25		8	1.27
25 -	26		0	0.00
26 -	27		0	0.00
27 -	28		0	0.00
28 -	29		0	0.00
29 -	30		0	0.00

PERCENT OF TIME MS AT

LEVEL			COUNT	PERCENT
	<			
0 -	2		108	17.14
2 -	4		5	.79
4 -	6		11	1.75
6 -	8		16	2.54
8 -	10		21	3.33
10 -	12		24	3.81
12 -	14		33	5.24
14 -	16		27	4.29
16 -	18		50	7.94
18 -	20		60	9.52
20 -	22		77	12.22
22 -	24		70	11.11
24 -	26		26	4.13
26 -	28		24	3.81
28 -	30		9	1.43
30 -	32		5	.79
32 -	34		1	.16
34 -	36		3	.48
36 -	38		1	.16
38 -	40		5	.79
40 -	42		11	1.75
42 -	44		16	2.54
44 -	46		22	3.49
46 -	48		5	.79
48 -	50		0	0.00
50 -	52		0	0.00
52 -	54		0	0.00
54 -	56		0	0.00
56 -	58		0	0.00
58 -	60		0	0.00

PERCENT OF TIME RPM AT

LEVEL			COUNT	PERCENT
	<			
0 -	200		0	0.00
200 -	400		0	0.00
400 -	600		3	.48
600 -	800		118	18.73
800 -	1000		11	1.75
1000 -	1200		48	7.62
1200 -	1400		68	10.79
1400 -	1600		117	18.57
1600 -	1800		115	18.25
1800 -	2000		47	7.46
2000 -	2200		15	2.38
2200 -	2400		19	3.02
2400 -	2600		19	3.02
2600 -	2800		39	6.19
2800 -	3000		10	1.59
3000 -	3200		1	.16
3200 -	3400		0	0.00
3400 -	3600		0	0.00
3600 -	3800		0	0.00
3800 -	4000		0	0.00
4000 -	4200		0	0.00
4200 -	4400		0	0.00
4400 -	4600		0	0.00
4600 -	4800		0	0.00
4800 -	5000		0	0.00

TABLE F-14.

1972 IHC 19000 LB. GVW VAN WITH 304 CID V8 TRUCK 3 2/25/72 RUN 4
RUN DURATION 20.68 MIN. IDLE SPEED 475 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1709.2735	672.5289	27.8056	585	3150.0000	525.0000	2625.0000
MV	2	13.5257	8.1515	.3370	585	24.5000	.0500	24.4500
SPD	3	18.9510	12.0464	.4981	585	49.3333	.3333	49.0000

PERCENT OF TIME MV AT

LEVEL	<	COUNT	PERCENT
0 -	1	47	8.03
1 -	2	27	4.62
2 -	3	29	4.96
3 -	4	15	2.56
4 -	5	20	3.42
5 -	6	21	3.59
6 -	7	9	1.54
7 -	8	15	2.56
8 -	9	19	3.25
9 -	10	11	1.88
10 -	11	8	1.37
11 -	12	9	1.54
12 -	13	8	1.37
13 -	14	14	2.39
14 -	15	15	2.56
15 -	16	15	2.56
16 -	17	21	3.59
17 -	18	74	12.65
18 -	19	41	7.01
19 -	20	7	1.20
20 -	21	20	3.42
21 -	22	14	2.39
22 -	23	25	4.27
23 -	24	79	13.50
24 -	25	22	3.76
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL	<	COUNT	PERCENT
0 -	2	70	11.97
2 -	4	8	1.37
4 -	6	16	2.74
6 -	8	9	1.54
8 -	10	26	4.44
10 -	12	29	4.96
12 -	14	49	8.38
14 -	16	39	6.67
16 -	18	31	5.30
18 -	20	35	5.98
20 -	22	39	6.67
22 -	24	43	7.35
24 -	26	49	8.38
26 -	28	21	3.59
28 -	30	34	5.81
30 -	32	12	2.05
32 -	34	9	1.54
34 -	36	2	.34
36 -	38	2	.34
38 -	40	4	.68
40 -	42	27	4.62
42 -	44	8	1.37
44 -	46	18	3.08
46 -	48	3	.51
48 -	50	2	.34
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	<	COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	4	.68
600 -	800	99	16.92
800 -	1000	13	2.22
1000 -	1200	19	3.25
1200 -	1400	29	4.96
1400 -	1600	53	9.06
1600 -	1800	76	12.99
1800 -	2000	78	13.33
2000 -	2200	70	11.97
2200 -	2400	45	7.69
2400 -	2600	36	6.15
2600 -	2800	31	5.30
2800 -	3000	23	3.93
3000 -	3200	9	1.54
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE F-15.

1972 IHC 19000 LB. GVW VAN WITH 304 CID V8 TRUCK 3 2/25/72 RUN 5
RUN DURATION 23.74 MIN. IDLE SPEED 475 RPM IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1585.8776	671.4742	25.7878	678	4250.0000	500.0000	3750.0000
MV	2	14.5817	7.9249	.3044	678	24.6250	.1250	24.5000
SPD	3	16.4245	11.9515	.4590	678	44.0000	.3333	43.6667

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0 - 1	68	10.03
1 - 2	21	3.10
2 - 3	21	3.10
3 - 4	12	1.77
4 - 5	11	1.62
5 - 6	14	2.06
6 - 7	11	1.62
7 - 8	12	1.77
8 - 9	15	2.21
9 - 10	12	1.77
10 - 11	6	.88
11 - 12	10	1.47
12 - 13	9	1.33
13 - 14	13	1.92
14 - 15	16	2.36
15 - 16	14	2.06
16 - 17	27	3.98
17 - 18	45	6.64
18 - 19	128	18.88
19 - 20	31	4.57
20 - 21	20	2.95
21 - 22	15	2.21
22 - 23	36	5.31
23 - 24	83	12.24
24 - 25	28	4.13
25 - 26	0	0.00
26 - 27	0	0.00
27 - 28	0	0.00
28 - 29	0	0.00
29 - 30	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0 - 2	127	18.73
2 - 4	13	1.92
4 - 6	14	2.06
6 - 8	34	5.01
8 - 10	33	4.87
10 - 12	29	4.28
12 - 14	34	5.01
14 - 16	46	6.78
16 - 18	32	4.72
18 - 20	49	7.23
20 - 22	57	8.41
22 - 24	50	7.37
24 - 26	32	4.72
26 - 28	20	2.95
28 - 30	15	2.21
30 - 32	12	1.77
32 - 34	8	1.18
34 - 36	6	.88
36 - 38	5	.74
38 - 40	21	3.10
40 - 42	31	4.57
42 - 44	8	1.18
44 - 46	2	.29
46 - 48	0	0.00
48 - 50	0	0.00
50 - 52	0	0.00
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0 - 200	0	0.00
200 - 400	0	0.00
400 - 600	2	.29
600 - 800	155	22.86
800 - 1000	11	1.62
1000 - 1200	19	2.80
1200 - 1400	53	7.82
1400 - 1600	76	11.21
1600 - 1800	82	12.09
1800 - 2000	90	13.27
2000 - 2200	53	7.82
2200 - 2400	31	4.57
2400 - 2600	63	9.29
2600 - 2800	36	5.31
2800 - 3000	6	.88
3000 - 3200	0	0.00
3200 - 3400	0	0.00
3400 - 3600	0	0.00
3600 - 3800	0	0.00
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	1	.15
4400 - 4600	0	0.00
4600 - 4800	0	0.00
4800 - 5000	0	0.00

TABLE F-16.

1972 IHC 19000 LB. GVW VAN WITH 304 CID V8 TRUCK 3 2/25/72 RUN 6

RUN DURATION 22.20 MIN. IDLE SPEED 475 RPM IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1549.9618	653.2600	25.5445	654	3650.0000	300.0000	3350.0000
MV	2	14.5281	7.9017	.3090	654	24.8750	0.0000	24.8750
SPD	3	18.0143	11.0192	.4309	654	46.6667	0.0000	46.6667

PERCENT OF TIME MV AT

LEVEL	<	COUNT	PERCENT
0 -	1	53	8.10
1 -	2	15	2.29
2 -	3	25	3.82
3 -	4	25	3.82
4 -	5	19	2.91
5 -	6	12	1.83
6 -	7	8	1.22
7 -	8	7	1.07
8 -	9	17	2.60
9 -	10	12	1.83
10 -	11	6	.92
11 -	12	14	2.14
12 -	13	14	2.14
13 -	14	9	1.38
14 -	15	16	2.45
15 -	16	21	3.21
16 -	17	15	2.29
17 -	18	63	9.63
18 -	19	90	13.76
19 -	20	22	3.36
20 -	21	32	4.89
21 -	22	22	3.36
22 -	23	33	5.05
23 -	24	74	11.31
24 -	25	30	4.59
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL	<	COUNT	PERCENT
0 -	2	76	11.62
2 -	4	15	2.29
4 -	6	11	1.68
6 -	8	20	3.06
8 -	10	21	3.21
10 -	12	25	3.82
12 -	14	48	7.34
14 -	16	41	6.27
16 -	18	54	8.26
18 -	20	48	7.34
20 -	22	83	12.69
22 -	24	62	9.48
24 -	26	33	5.05
26 -	28	14	2.14
28 -	30	23	3.52
30 -	32	8	1.22
32 -	34	6	.92
34 -	36	7	1.07
36 -	38	16	2.45
38 -	40	7	1.07
40 -	42	15	2.29
42 -	44	10	1.53
44 -	46	8	1.22
46 -	48	3	.46
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	<	COUNT	PERCENT
0 -	200	0	0.00
200 -	400	3	.46
400 -	600	44	6.73
600 -	800	90	13.76
800 -	1000	12	1.83
1000 -	1200	37	5.66
1200 -	1400	58	8.87
1400 -	1600	59	9.02
1600 -	1800	113	17.28
1800 -	2000	80	12.23
2000 -	2200	44	6.73
2200 -	2400	36	5.50
2400 -	2600	35	5.35
2600 -	2800	26	3.98
2800 -	3000	14	2.14
3000 -	3200	1	.15
3200 -	3400	1	.15
3400 -	3600	0	0.00
3600 -	3800	1	.15
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 4B

1970 FORD 10,000-LB GVW VAN
WITH 300 CID I-6 ENGINE

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TABLE F-17.

1970 FORD 10000 LB GVW VAN 300 CID I-6 TRUCK 48 03/06/72 RUN 1
RUN DURATION 24.14 MIN IDLE SPEED 650 RPM IDLE VAC 15.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1536.3660	792.7123	6.7775	13680	4325.0000	425.0000	3900.0000
MV	2	12.1367	6.8107	.0582	13680	24.9750	.0000	24.9750
SPD	3	18.5904	13.5955	.1162	13680	58.0667	.0000	58.0667
IP	4	3.3107	1.8316	.0157	13680	8.4800	.0000	8.4800

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	3164	23.13
WOT	501	3.66

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	1712	50.06
2	1706	49.88
3	2	.06
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
< 1.	1590	11.62
1. - 2.	586	4.28
2. - 3.	187	1.37
3. - 4.	155	1.13
4. - 5.	260	1.90
5. - 6.	349	2.55
6. - 7.	395	2.89
7. - 8.	290	2.12
8. - 9.	317	2.32
9. - 10.	285	2.08
10. - 11.	471	3.44
11. - 12.	606	4.43
12. - 13.	511	3.74
13. - 14.	1184	8.65
14. - 15.	1507	11.02
15. - 16.	780	5.70
16. - 17.	602	4.40
17. - 18.	673	4.92
18. - 19.	629	4.60
19. - 20.	549	4.01
20. - 21.	654	4.78
21. - 22.	552	4.04
22. - 23.	268	1.96
23. - 24.	193	1.41
24. - 25.	87	.64
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
< 2.	2100	15.35
2. - 4.	312	2.28
4. - 6.	247	1.81
6. - 8.	458	3.35
8. - 10.	703	5.14
10. - 12.	794	5.80
12. - 14.	875	6.40
14. - 16.	972	7.11
16. - 18.	661	4.83
18. - 20.	611	4.47
20. - 22.	709	5.18
22. - 24.	1042	7.62
24. - 26.	954	6.97
26. - 28.	478	3.49
28. - 30.	586	4.28
30. - 32.	258	1.89
32. - 34.	274	2.00
34. - 36.	135	.99
36. - 38.	130	.95
38. - 40.	86	.63
40. - 42.	79	.58
42. - 44.	142	1.04
44. - 46.	215	1.57
46. - 48.	195	1.43
48. - 50.	335	2.45
50. - 52.	138	1.01
52. - 54.	109	.80
54. - 56.	45	.33
56. - 58.	36	.26
58. - 60.	1	.01

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	1139	8.33
600. - 800.	2035	14.88
800. - 1000.	1116	8.16
1000. - 1200.	922	6.74
1200. - 1400.	1160	8.48
1400. - 1600.	1478	10.80
1600. - 1800.	1478	10.80
1800. - 2000.	1248	9.12
2000. - 2200.	784	5.73
2200. - 2400.	390	2.85
2400. - 2600.	254	1.86
2600. - 2800.	259	1.89
2800. - 3000.	401	2.93
3000. - 3200.	215	1.57
3200. - 3400.	560	4.09
3400. - 3600.	158	1.15
3600. - 3800.	53	.39
3800. - 4000.	14	.10
4000. - 4200.	7	.05
4200. - 4400.	9	.07
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE E-1b.
1970 FORD 10000 LB GVW VAN 300 CID I-6 TRUCK 48 03/04/72 RUN 2
RUN DURATION 24.33 MIN IDLE SPEED 650 RPM IDLE VAC 15.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1566.8898	868.7399	7.4146	13728	4290.0000	430.0000	3860.0000
MV	2	11.7215	6.8024	.0581	13728	24.9750	.0000	24.9750
SPD	3	18.4878	15.0241	.1282	13728	55.7333	.0000	55.7333
TP	4	3.5349	1.5752	.0134	13728	8.4700	1.5400	6.9300

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	3849	28.04
NOT	359	2.62

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	1900	55.36
2	1529	44.55
3	3	.09
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	1308	9.53
1. - 2.	559	4.07
2. - 3.	447	3.26
3. - 4.	519	3.78
4. - 5.	395	2.88
5. - 6.	351	2.56
6. - 7.	326	2.37
7. - 8.	315	2.29
8. - 9.	375	2.73
9. - 10.	318	2.32
10. - 11.	322	2.35
11. - 12.	254	1.85
12. - 13.	460	3.35
13. - 14.	2519	18.35
14. - 15.	1069	7.79
15. - 16.	618	4.50
16. - 17.	414	3.02
17. - 18.	362	2.64
18. - 19.	472	3.44
19. - 20.	563	4.10
20. - 21.	631	4.60
21. - 22.	495	3.61
22. - 23.	354	2.58
23. - 24.	195	1.42
24. - 25.	87	.63
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	3274	23.85
2. - 4.	353	2.57
4. - 6.	282	2.05
6. - 8.	277	2.02
8. - 10.	526	3.83
10. - 12.	575	4.19
12. - 14.	493	3.59
14. - 16.	458	3.34
16. - 18.	471	3.43
18. - 20.	794	5.78
20. - 22.	581	4.23
22. - 24.	483	3.52
24. - 26.	733	5.34
26. - 28.	847	6.17
28. - 30.	798	5.81
30. - 32.	378	2.75
32. - 34.	346	2.52
34. - 36.	393	2.86
36. - 38.	156	1.14
38. - 40.	121	.88
40. - 42.	186	1.35
42. - 44.	117	.85
44. - 46.	159	1.16
46. - 48.	163	1.19
48. - 50.	232	1.69
50. - 52.	393	2.86
52. - 54.	84	.61
54. - 56.	55	.40
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	1937	14.11
600. - 800.	2304	16.78
800. - 1000.	561	4.09
1000. - 1200.	584	4.25
1200. - 1400.	798	5.81
1400. - 1600.	1169	8.52
1600. - 1800.	922	6.72
1800. - 2000.	1250	9.11
2000. - 2200.	1269	9.24
2200. - 2400.	646	4.71
2400. - 2600.	498	3.63
2600. - 2800.	283	2.06
2800. - 3000.	218	1.59
3000. - 3200.	394	2.87
3200. - 3400.	595	4.33
3400. - 3600.	184	1.34
3600. - 3800.	70	.51
3800. - 4000.	32	.23
4000. - 4200.	9	.07
4200. - 4400.	5	.04
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-19.
1970 FORD 10000 LB GVW VAN 300 CID I-6 TRUCK 4A 03/07/72 RUN 3
RUN DURATION 20.20 MIN IDLE SPEED 650 RPM IDLE VAC 15.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1754.9399	881.3751	8.2781	11336	4140.0000	430.0000	3710.0000
MV	2	11.3406	7.4200	.0697	11336	24.9750	.0000	24.9750
SPD	3	22.3282	14.8456	.1394	11336	59.6667	.0000	59.6667
TP	4	3.8298	1.6807	.0158	11336	9.4400	1.0900	8.3500

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	1995	17.60
NOT	338	2.98

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	0	.00
3	0	.00
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	1231	10.86
1. - 2.	1006	8.87
2. - 3.	438	3.86
3. - 4.	323	2.85
4. - 5.	288	2.54
5. - 6.	225	1.98
6. - 7.	284	2.51
7. - 8.	263	2.32
8. - 9.	262	2.31
9. - 10.	258	2.28
10. - 11.	240	2.12
11. - 12.	344	3.03
12. - 13.	299	2.64
13. - 14.	1159	10.22
14. - 15.	990	8.73
15. - 16.	347	3.06
16. - 17.	290	2.56
17. - 18.	249	2.20
18. - 19.	361	3.18
19. - 20.	602	5.31
20. - 21.	787	6.94
21. - 22.	651	5.74
22. - 23.	306	2.70
23. - 24.	58	.51
24. - 25.	75	.66
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1678	14.80
2. - 4.	190	1.68
4. - 6.	124	1.09
6. - 8.	202	1.78
8. - 10.	213	1.88
10. - 12.	293	2.58
12. - 14.	367	3.24
14. - 16.	335	2.96
16. - 18.	498	4.39
18. - 20.	671	5.92
20. - 22.	722	6.37
22. - 24.	846	7.46
24. - 26.	915	8.07
26. - 28.	730	6.44
28. - 30.	794	7.00
30. - 32.	977	8.62
32. - 34.	249	2.20
34. - 36.	209	1.84
36. - 38.	72	.64
38. - 40.	58	.51
40. - 42.	37	.33
42. - 44.	31	.27
44. - 46.	33	.29
46. - 48.	31	.27
48. - 50.	27	.24
50. - 52.	45	.40
52. - 54.	393	3.47
54. - 56.	450	3.97
56. - 58.	99	.87
58. - 60.	47	.41

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	994	8.77
600. - 800.	1165	10.28
800. - 1000.	495	4.37
1000. - 1200.	588	5.19
1200. - 1400.	690	6.09
1400. - 1600.	962	8.49
1600. - 1800.	1052	9.28
1800. - 2000.	1324	11.68
2000. - 2200.	1525	13.45
2200. - 2400.	678	5.98
2400. - 2600.	347	3.06
2600. - 2800.	127	1.12
2800. - 3000.	43	.38
3000. - 3200.	59	.52
3200. - 3400.	103	.91
3400. - 3600.	660	5.82
3600. - 3800.	417	3.68
3800. - 4000.	81	.71
4000. - 4200.	26	.23
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-20.

1970 FORD 10000 LB GVW VAN 300 CID I-6 TRUCK 4B 03/07/72 RUN 5
RUN DURATION 21.63 MIN IDLE SPEED 650 RPM IDLE VAC 15.0 INCHES HG

VAR NO		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1664.7532	778.3677	7.0424	12216	4420.0000	.0000	4420.0000
MV	2	11.2537	7.4269	.0672	12216	24.9750	.0000	24.9750
SPD	3	21.8159	13.3750	.1210	12216	57.7333	.0000	57.7333
TP	4	3.7064	1.6204	.0147	12216	9.9300	.2900	9.6400

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	2230	18.25
OUT	416	3.41

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	0	.00
3	0	.00
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
< . - 1.	1547	12.66
1. - 2.	972	7.96
2. - 3.	322	2.64
3. - 4.	344	2.82
4. - 5.	304	2.49
5. - 6.	206	1.69
6. - 7.	335	2.74
7. - 8.	338	2.77
8. - 9.	254	2.08
9. - 10.	352	2.88
10. - 11.	318	2.60
11. - 12.	338	2.77
12. - 13.	306	2.50
13. - 14.	929	7.60
14. - 15.	1431	11.71
15. - 16.	525	4.30
16. - 17.	452	3.70
17. - 18.	311	2.55
18. - 19.	375	3.07
19. - 20.	403	3.30
20. - 21.	508	4.16
21. - 22.	654	5.35
22. - 23.	321	2.63
23. - 24.	189	1.55
24. - 25.	182	1.49
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
< . - 2.	1429	11.70
2. - 4.	168	1.38
4. - 6.	162	1.33
6. - 8.	272	2.23
8. - 10.	456	3.73
10. - 12.	491	4.02
12. - 14.	370	3.03
14. - 16.	657	5.38
16. - 18.	565	4.63
18. - 20.	658	5.39
20. - 22.	835	6.84
22. - 24.	1068	8.74
24. - 26.	722	5.91
26. - 28.	801	6.56
28. - 30.	855	7.00
30. - 32.	235	1.92
32. - 34.	113	.93
34. - 36.	205	1.68
36. - 38.	239	1.96
38. - 40.	450	3.68
40. - 42.	431	3.53
42. - 44.	242	1.98
44. - 46.	389	3.18
46. - 48.	119	.97
48. - 50.	53	.43
50. - 52.	75	.61
52. - 54.	95	.78
54. - 56.	49	.40
56. - 58.	12	.10
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
< . - 200.	1	.01
200. - 400.	0	.00
400. - 600.	685	5.61
600. - 800.	1458	11.94
800. - 1000.	558	4.57
1000. - 1200.	1067	8.73
1200. - 1400.	925	7.57
1400. - 1600.	1441	11.80
1600. - 1800.	1027	8.41
1800. - 2000.	1439	11.78
2000. - 2200.	1033	8.46
2200. - 2400.	630	5.16
2400. - 2600.	300	2.46
2600. - 2800.	337	2.76
2800. - 3000.	482	3.95
3000. - 3200.	368	3.01
3200. - 3400.	86	.70
3400. - 3600.	200	1.64
3600. - 3800.	113	.93
3800. - 4000.	40	.33
4000. - 4200.	8	.07
4200. - 4400.	17	.14
4400. - 4600.	1	.01
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 6

1972 FORD 24,000-LB GVW VAN
WITH 330 CID V-8 ENGINE

TABLE F-21.

1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/10/72 RUN 1
RUN DURATION 25.25 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1749.8437	751.2550	8.4544	7896	4260.0000	655.0000	3605.0000
MV	2	12.5665	7.7828	.0876	7896	23.4500	.2000	23.2500
SPD	3	15.8951	11.2339	.1864	7896	39.6000	.0000	39.6000
TP	4	2.0342	2.3845	.0268	7896	9.9400	.0100	9.9300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4907	62.15
WOT	15	.19

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	592	29.99
3	474	24.01
4	754	38.20
5	154	7.80
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	423	5.36
1. - 2.	844	10.69
2. - 3.	472	5.98
3. - 4.	278	3.52
4. - 5.	273	3.46
5. - 6.	158	2.00
6. - 7.	154	1.95
7. - 8.	148	1.87
8. - 9.	154	1.95
9. - 10.	150	1.90
10. - 11.	111	1.41
11. - 12.	106	1.34
12. - 13.	91	1.15
13. - 14.	130	1.65
14. - 15.	165	2.09
15. - 16.	133	1.68
16. - 17.	700	8.87
17. - 18.	1138	14.41
18. - 19.	289	3.66
19. - 20.	217	2.75
20. - 21.	429	5.43
21. - 22.	884	11.20
22. - 23.	416	5.27
23. - 24.	33	.42
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1595	20.20
2. - 4.	149	1.89
4. - 6.	239	3.03
6. - 8.	305	3.86
8. - 10.	350	4.43
10. - 12.	430	5.45
12. - 14.	374	4.74
14. - 16.	482	6.10
16. - 18.	311	3.94
18. - 20.	378	4.79
20. - 22.	502	6.36
22. - 24.	494	6.26
24. - 26.	570	7.22
26. - 28.	410	5.19
28. - 30.	480	6.08
30. - 32.	202	2.56
32. - 34.	214	2.71
34. - 36.	241	3.05
36. - 38.	132	1.67
38. - 40.	38	.48
40. - 42.	0	.00
42. - 44.	0	.00
44. - 46.	0	.00
46. - 48.	0	.00
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	1532	19.40
800. - 1000.	408	5.17
1000. - 1200.	227	2.87
1200. - 1400.	407	5.15
1400. - 1600.	596	7.55
1600. - 1800.	753	9.54
1800. - 2000.	959	12.15
2000. - 2200.	1057	13.39
2200. - 2400.	599	7.59
2400. - 2600.	352	4.46
2600. - 2800.	306	3.88
2800. - 3000	227	2.87
3000. - 3200.	156	1.98
3200. - 3400.	122	1.55
3400. - 3600.	89	1.13
3600. - 3800.	70	.89
3800. - 4000.	28	.35
4000. - 4200.	7	.09
4200. - 4400.	1	.01
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE I-22.

1972 FORD 24000 LH GVW VAN 330 CID V8 TRUCK 6 04/10/72 RUN 2
RUN DURATION 22.65 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1579.3376	686.3489	6.0571	12840	3660.0000	440.0000	3220.0000
MV	2	12.6612	7.5082	.0663	12840	23.7000	.0750	23.6250
SPD	3	17.0175	13.2777	.1172	12840	53.5333	.0000	53.5333
TP	4	2.0074	2.3838	.0210	12840	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	7877	61.35
WOT	176	1.37

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	994	30.97
3	486	15.14
4	773	24.08
5	955	29.75
6	2	.06
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	787	6.13
1. - 2.	1368	10.65
2. - 3.	557	4.34
3. - 4.	365	2.84
4. - 5.	264	2.06
5. - 6.	255	1.99
6. - 7.	252	1.96
7. - 8.	213	1.66
8. - 9.	253	1.97
9. - 10.	270	2.10
10. - 11.	254	1.98
11. - 12.	312	2.43
12. - 13.	331	2.58
13. - 14.	276	2.15
14. - 15.	324	2.52
15. - 16.	335	2.61
16. - 17.	310	2.41
17. - 18.	1781	13.87
18. - 19.	1836	14.30
19. - 20.	469	3.65
20. - 21.	597	4.65
21. - 22.	898	6.99
22. - 23.	476	3.71
23. - 24.	57	.44
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	2558	19.92
2. - 4.	334	2.60
4. - 6.	469	3.65
6. - 8.	450	3.50
8. - 10.	529	4.12
10. - 12.	644	5.02
12. - 14.	623	4.85
14. - 16.	755	5.88
16. - 18.	657	5.12
18. - 20.	674	5.25
20. - 22.	904	7.04
22. - 24.	583	4.54
24. - 26.	712	5.55
26. - 28.	571	4.45
28. - 30.	368	2.87
30. - 32.	224	1.74
32. - 34.	198	1.54
34. - 36.	301	2.34
36. - 38.	160	1.25
38. - 40.	59	.46
40. - 42.	176	1.37
42. - 44.	397	3.09
44. - 46.	225	1.75
46. - 48.	77	.60
48. - 50.	106	.83
50. - 52.	45	.35
52. - 54.	41	.32
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	64	.50
600. - 800.	2901	22.59
800. - 1000.	571	4.45
1000. - 1200.	779	6.07
1200. - 1400.	1113	8.67
1400. - 1600.	1322	10.30
1600. - 1800.	1510	11.76
1800. - 2000.	1174	9.14
2000. - 2200.	773	6.02
2200. - 2400.	563	4.38
2400. - 2600.	721	5.62
2600. - 2800.	813	6.33
2800. - 3000.	304	2.37
3000. - 3200.	167	1.30
3200. - 3400.	34	.26
3400. - 3600.	24	.19
3600. - 3800.	7	.05
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-23.
1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/10/72 RUN 5
RUN DURATION 23.45 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1757.9893	726.8581	6.9139	11052	3920.0000	325.0000	3595.0000
MV	2	12.1716	7.9364	.0755	11052	23.9250	.1500	23.7750
SPD	3	19.8982	13.6397	.1297	11052	50.8667	.0000	50.8667
TP	4	2.4678	2.6334	.0250	11052	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5971	54.03
NOT	155	1.40

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	649	23.49
3	509	18.42
4	648	23.45
5	956	34.60
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	802	7.26
1. - 2.	1248	11.29
2. - 3.	621	5.62
3. - 4.	413	3.74
4. - 5.	273	2.47
5. - 6.	288	2.61
6. - 7.	231	2.09
7. - 8.	181	1.64
8. - 9.	224	2.03
9. - 10.	263	2.38
10. - 11.	205	1.85
11. - 12.	199	1.80
12. - 13.	207	1.87
13. - 14.	142	1.28
14. - 15.	195	1.76
15. - 16.	233	2.11
16. - 17.	296	2.68
17. - 18.	1415	12.80
18. - 19.	959	8.68
19. - 20.	418	3.78
20. - 21.	556	5.03
21. - 22.	997	9.02
22. - 23.	584	5.28
23. - 24.	102	.92
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1694	15.33
2. - 4.	198	1.79
4. - 6.	211	1.91
6. - 8.	317	2.87
8. - 10.	357	3.23
10. - 12.	460	4.16
12. - 14.	690	6.24
14. - 16.	534	4.83
16. - 18.	426	3.85
18. - 20.	555	5.02
20. - 22.	713	6.45
22. - 24.	663	6.00
24. - 26.	852	7.71
26. - 28.	716	6.48
28. - 30.	446	4.04
30. - 32.	318	2.88
32. - 34.	333	3.01
34. - 36.	277	2.51
36. - 38.	126	1.14
38. - 40.	52	.47
40. - 42.	75	.68
42. - 44.	192	1.74
44. - 46.	107	.97
46. - 48.	298	2.70
48. - 50.	399	3.61
50. - 52.	43	.39
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	5	.05
400. - 600.	62	.56
600. - 800.	1759	15.92
800. - 1000.	530	4.80
1000. - 1200.	394	3.56
1200. - 1400.	696	6.30
1400. - 1600.	1122	10.15
1600. - 1800.	1344	12.16
1800. - 2000.	1368	12.38
2000. - 2200.	837	7.57
2200. - 2400.	592	5.36
2400. - 2600.	542	4.90
2600. - 2800.	562	5.09
2800. - 3000.	643	5.82
3000. - 3200.	439	3.97
3200. - 3400.	86	.78
3400. - 3600.	53	.48
3600. - 3800.	14	.13
3800. - 4000.	4	.04
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-24.
1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/10/72 RUN 6
RUN DURATION 21.93 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1795.6252	830.3809	7.5841	11988	4215.0000	655.0000	3560.0000
MV	2	12.5952	7.5499	.0690	11988	23.7750	.2500	23.5250
SPD	3	18.4508	14.3676	.1312	11988	55.3333	.0000	55.3333
TP	4	2.2870	2.5204	.0230	11988	9.9600	.1000	9.8600

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	6607	55.11
NOT	58	.48

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	970	32.37
3	635	21.19
4	865	28.86
5	526	17.55
6	0	.00
7	1	.03

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	313	2.61
1. - 2.	1476	12.31
2. - 3.	944	7.87
3. - 4.	314	2.62
4. - 5.	232	1.94
5. - 6.	214	1.79
6. - 7.	183	1.53
7. - 8.	187	1.56
8. - 9.	281	2.34
9. - 10.	239	1.99
10. - 11.	269	2.24
11. - 12.	312	2.60
12. - 13.	266	2.22
13. - 14.	217	1.81
14. - 15.	271	2.26
15. - 16.	262	2.19
16. - 17.	426	3.55
17. - 18.	2141	17.86
18. - 19.	1071	8.93
19. - 20.	259	2.16
20. - 21.	422	3.52
21. - 22.	862	7.19
22. - 23.	748	6.24
23. - 24.	79	.66
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2734	22.81
2. - 4.	267	2.23
4. - 6.	205	1.71
6. - 8.	300	2.50
8. - 10.	368	3.07
10. - 12.	363	3.03
12. - 14.	560	4.67
14. - 16.	511	4.26
16. - 18.	508	4.24
18. - 20.	583	4.86
20. - 22.	628	5.24
22. - 24.	601	5.01
24. - 26.	622	5.19
26. - 28.	644	5.37
28. - 30.	480	4.00
30. - 32.	418	3.49
32. - 34.	588	4.90
34. - 36.	338	2.82
36. - 38.	120	1.00
38. - 40.	99	.83
40. - 42.	136	1.13
42. - 44.	265	2.21
44. - 46.	185	1.54
46. - 48.	100	.83
48. - 50.	137	1.14
50. - 52.	70	.58
52. - 54.	99	.83
54. - 56.	59	.49
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	2721	22.70
800. - 1000.	689	5.75
1000. - 1200.	257	2.14
1200. - 1400.	324	2.70
1400. - 1600.	837	6.98
1600. - 1800.	1026	8.56
1800. - 2000.	1103	9.20
2000. - 2200.	1335	11.14
2200. - 2400.	705	5.88
2400. - 2600.	606	5.06
2600. - 2800.	865	7.22
2800. - 3000.	506	4.22
3000. - 3200.	382	3.19
3200. - 3400.	310	2.59
3400. - 3600.	151	1.26
3600. - 3800.	87	.73
3800. - 4000.	49	.41
4000. - 4200.	33	.28
4200. - 4400.	2	.02
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-25.
1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/06/72 RUN 1
RUN DURATION 21.40 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1755.9873	771.7511	7.9263	9480	4215.0000	430.0000	3785.0000
MV	2	11.9199	7.5613	.0777	9480	23.6500	.1750	23.4750
SPD	3	21.0761	14.6765	.1507	9480	57.6000	.0000	57.6000
TP	4	2.5534	2.6365	.0271	9480	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4755	50.16
WOT	122	1.29

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	577	24.35
3	567	23.92
4	595	25.11
5	630	26.58
6	1	.04
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	523	5.52
1. - 2.	991	10.45
2. - 3.	573	6.04
3. - 4.	371	3.91
4. - 5.	257	2.71
5. - 6.	244	2.57
6. - 7.	277	2.92
7. - 8.	205	2.16
8. - 9.	242	2.55
9. - 10.	301	3.18
10. - 11.	196	2.07
11. - 12.	196	2.07
12. - 13.	228	2.41
13. - 14.	191	2.01
14. - 15.	265	2.80
15. - 16.	228	2.41
16. - 17.	530	5.59
17. - 18.	1214	12.81
18. - 19.	356	3.76
19. - 20.	379	4.00
20. - 21.	517	5.45
21. - 22.	774	8.16
22. - 23.	394	4.16
23. - 24.	28	.30
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1280	13.50
2. - 4.	128	1.35
4. - 6.	179	1.89
6. - 8.	206	2.17
8. - 10.	325	3.43
10. - 12.	403	4.25
12. - 14.	805	8.49
14. - 16.	584	6.16
16. - 18.	512	5.40
18. - 20.	471	4.97
20. - 22.	631	6.66
22. - 24.	472	4.98
24. - 26.	398	4.20
26. - 28.	325	3.43
28. - 30.	317	3.34
30. - 32.	283	2.99
32. - 34.	286	3.02
34. - 36.	562	5.93
36. - 38.	166	1.75
38. - 40.	17	.18
40. - 42.	24	.25
42. - 44.	17	.18
44. - 46.	43	.45
46. - 48.	274	2.89
48. - 50.	279	2.94
50. - 52.	258	2.72
52. - 54.	147	1.55
54. - 56.	60	.63
56. - 58.	28	.30
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	33	.35
600. - 800.	1502	15.84
800. - 1000.	629	6.64
1000. - 1200.	570	6.01
1200. - 1400.	604	6.37
1400. - 1600.	921	9.72
1600. - 1800.	907	9.57
1800. - 2000.	814	8.59
2000. - 2200.	919	9.69
2200. - 2400.	511	5.39
2400. - 2600.	495	5.22
2600. - 2800.	257	2.71
2800. - 3000.	593	6.26
3000. - 3200.	470	4.96
3200. - 3400.	152	1.60
3400. - 3600.	52	.55
3600. - 3800.	25	.26
3800. - 4000.	19	.20
4000. - 4200.	6	.06
4200. - 4400.	1	.01
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-26.

1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/06/72 RUN 2
RUN DURATION 20.06 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1881.8508	762.6237	8.4424	8160	4315.0000	660.0000	3655.0000
MV	2	12.6726	7.5483	.0836	8160	23.9250	.2250	23.7000
SPD	3	21.0924	13.3879	.1482	8160	51.3333	.0000	51.3333
TP	4	2.2566	2.3284	.0258	8160	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4490	55.02
WOT	92	1.13

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	378	18.53
3	527	25.83
4	703	34.46
5	432	21.18
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	313	3.84
1. - 2.	803	9.84
2. - 3.	568	6.96
3. - 4.	297	3.64
4. - 5.	179	2.19
5. - 6.	206	2.52
6. - 7.	182	2.23
7. - 8.	176	2.16
8. - 9.	154	1.89
9. - 10.	170	2.08
10. - 11.	129	1.58
11. - 12.	120	1.47
12. - 13.	199	2.44
13. - 14.	198	2.43
14. - 15.	155	1.90
15. - 16.	174	2.13
16. - 17.	463	5.67
17. - 18.	1227	15.04
18. - 19.	568	6.96
19. - 20.	300	3.68
20. - 21.	439	5.38
21. - 22.	662	8.11
22. - 23.	427	5.23
23. - 24.	51	.63
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1083	13.27
2. - 4.	52	.64
4. - 6.	131	1.61
6. - 8.	201	2.46
8. - 10.	291	3.57
10. - 12.	296	3.63
12. - 14.	377	4.62
14. - 16.	513	6.29
16. - 18.	579	7.10
18. - 20.	428	5.25
20. - 22.	513	6.29
22. - 24.	423	5.18
24. - 26.	327	4.01
26. - 28.	385	4.72
28. - 30.	469	5.75
30. - 32.	447	5.48
32. - 34.	326	4.00
34. - 36.	201	2.46
36. - 38.	36	.44
38. - 40.	63	.77
40. - 42.	164	2.01
42. - 44.	316	3.87
44. - 46.	250	3.06
46. - 48.	217	2.66
48. - 50.	49	.60
50. - 52.	23	.28
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	1357	16.63
800. - 1000.	467	5.72
1000. - 1200.	121	1.48
1200. - 1400.	232	2.84
1400. - 1600.	507	6.21
1600. - 1800.	601	7.37
1800. - 2000.	1024	12.55
2000. - 2200.	761	9.33
2200. - 2400.	805	9.87
2400. - 2600.	721	8.84
2600. - 2800.	720	8.82
2800. - 3000.	454	5.56
3000. - 3200.	182	2.23
3200. - 3400.	90	1.10
3400. - 3600.	46	.56
3600. - 3800.	26	.32
3800. - 4000.	24	.29
4000. - 4200.	17	.21
4200. - 4400.	5	.06
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-27.
1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/06/72 RUN 3
RUN DURATION 20.31 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1723.7690	633.8262	6.2033	10440	4005.0000	520.0000	3485.0000
MV	2	12.4653	7.5402	.0738	10440	23.6750	.1750	23.5000
SPD	3	21.9642	12.6745	.1240	10440	50.0667	.0000	50.0667
TP	4	1.9874	1.9483	.0191	10440	9.9800	.0000	9.9800

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5805	55.60
WOT	3	.03

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	554	21.23
3	642	24.60
4	920	35.25
5	493	18.89
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	556	5.33
1. - 2.	951	9.11
2. - 3.	557	5.34
3. - 4.	368	3.52
4. - 5.	284	2.72
5. - 6.	280	2.68
6. - 7.	269	2.58
7. - 8.	250	2.39
8. - 9.	278	2.66
9. - 10.	256	2.45
10. - 11.	245	2.35
11. - 12.	272	2.61
12. - 13.	250	2.39
13. - 14.	250	2.39
14. - 15.	213	2.04
15. - 16.	239	2.29
16. - 17.	618	5.92
17. - 18.	1015	9.72
18. - 19.	475	4.55
19. - 20.	570	5.46
20. - 21.	915	8.76
21. - 22.	955	9.15
22. - 23.	328	3.14
23. - 24.	46	.44
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1093	10.47
2. - 4.	208	1.99
4. - 6.	127	1.22
6. - 8.	150	1.44
8. - 10.	260	2.49
10. - 12.	372	3.56
12. - 14.	481	4.61
14. - 16.	494	4.73
16. - 18.	574	5.50
18. - 20.	788	7.55
20. - 22.	518	4.96
22. - 24.	596	5.71
24. - 26.	729	6.98
26. - 28.	970	9.29
28. - 30.	667	6.39
30. - 32.	481	4.61
32. - 34.	277	2.65
34. - 36.	297	2.84
36. - 38.	113	1.08
38. - 40.	114	1.09
40. - 42.	143	1.37
42. - 44.	234	2.24
44. - 46.	334	3.20
46. - 48.	334	3.20
48. - 50.	82	.79
50. - 52.	4	.04
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	10	.10
600. - 800.	1174	11.25
800. - 1000.	376	3.60
1000. - 1200.	524	5.02
1200. - 1400.	1107	10.60
1400. - 1600.	1385	13.27
1600. - 1800.	1568	15.02
1800. - 2000.	1135	10.87
2000. - 2200.	886	8.49
2200. - 2400.	458	4.39
2400. - 2600.	517	4.95
2600. - 2800.	672	6.44
2800. - 3000.	441	4.22
3000. - 3200.	88	.84
3200. - 3400.	62	.59
3400. - 3600.	18	.17
3600. - 3800.	10	.10
3800. - 4000.	8	.08
4000. - 4200.	1	.01
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-28.

1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/07/72 RUN 1
RUN DURATION 21.26 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1849.6699	839.5210	8.1851	10520	4345.0000	.0000	4345.0000
MV	2	11.8767	8.0246	.0782	10520	23.8250	.1500	23.6750
SPD	3	17.7651	15.6726	.1528	10520	57.3333	.0000	57.3333
TP	4	2.4487	2.6952	.0263	10520	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	5684	54.03
WOT	298	2.83

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	51	1.94
2	479	18.21
3	550	20.91
4	1218	46.31
5	331	12.59
6	0	.00
7	1	.04

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
< . - 1.	671	6.38
1. - 2.	1213	11.53
2. - 3.	852	8.10
3. - 4.	388	3.69
4. - 5.	305	2.90
5. - 6.	216	2.05
6. - 7.	200	1.90
7. - 8.	226	2.15
8. - 9.	205	1.95
9. - 10.	258	2.45
10. - 11.	253	2.40
11. - 12.	227	2.16
12. - 13.	148	1.41
13. - 14.	170	1.62
14. - 15.	202	1.92
15. - 16.	202	1.92
16. - 17.	341	3.24
17. - 18.	1346	12.79
18. - 19.	520	4.94
19. - 20.	248	2.36
20. - 21.	474	4.51
21. - 22.	960	9.13
22. - 23.	784	7.45
23. - 24.	111	1.06
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
< . - 2.	3144	29.89
2. - 4.	95	.90
4. - 6.	134	1.27
6. - 8.	143	1.36
8. - 10.	260	2.47
10. - 12.	374	3.56
12. - 14.	397	3.77
14. - 16.	458	4.35
16. - 18.	488	4.64
18. - 20.	417	3.96
20. - 22.	576	5.48
22. - 24.	600	5.70
24. - 26.	429	4.08
26. - 28.	421	4.00
28. - 30.	431	4.10
30. - 32.	264	2.51
32. - 34.	362	3.44
34. - 36.	385	3.66
36. - 38.	103	.98
38. - 40.	87	.83
40. - 42.	30	.29
42. - 44.	24	.23
44. - 46.	66	.63
46. - 48.	195	1.85
48. - 50.	93	.88
50. - 52.	32	.30
52. - 54.	246	2.34
54. - 56.	217	2.06
56. - 58.	49	.47
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
< . - 200.	98	.93
200. - 400.	27	.26
400. - 600.	47	.45
600. - 800.	1639	15.58
800. - 1000.	422	4.01
1000. - 1200.	480	4.56
1200. - 1400.	662	6.29
1400. - 1600.	698	6.63
1600. - 1800.	970	9.22
1800. - 2000.	1046	9.94
2000. - 2200.	941	8.94
2200. - 2400.	820	7.79
2400. - 2600.	615	5.85
2600. - 2800.	369	3.51
2800. - 3000.	549	5.22
3000. - 3200.	270	2.57
3200. - 3400.	575	5.47
3400. - 3600.	138	1.31
3600. - 3800.	97	.92
3800. - 4000.	31	.29
4000. - 4200.	14	.13
4200. - 4400.	12	.11
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-29.
1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/07/72 RUN 2
RUN DURATION 20.51 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1883.0303	770.2557	7.4984	10552	4165.0000	635.0000	3530.0000
MV	2	12.3594	7.8019	.0760	10552	23.8250	.2500	23.5750
SPD	3	21.0738	14.3949	.1401	10552	53.5333	.0000	53.5333
TP	4	2.3335	2.5819	.0251	10552	9.8800	.1500	9.7300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5616	53.22
WOT	108	1.02

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	665	25.21
3	422	16.00
4	1029	39.01
5	520	19.71
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	374	3.54
1. - 2.	1314	12.45
2. - 3.	701	6.64
3. - 4.	342	3.24
4. - 5.	315	2.99
5. - 6.	267	2.53
6. - 7.	210	1.99
7. - 8.	222	2.10
8. - 9.	291	2.76
9. - 10.	266	2.52
10. - 11.	161	1.53
11. - 12.	182	1.72
12. - 13.	174	1.65
13. - 14.	213	2.02
14. - 15.	265	2.51
15. - 16.	220	2.08
16. - 17.	432	4.09
17. - 18.	1622	15.37
18. - 19.	469	4.44
19. - 20.	183	1.73
20. - 21.	348	3.30
21. - 22.	1084	10.27
22. - 23.	807	7.65
23. - 24.	90	.85
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1782	16.89
2. - 4.	149	1.41
4. - 6.	175	1.66
6. - 8.	260	2.46
8. - 10.	249	2.36
10. - 12.	329	3.12
12. - 14.	440	4.17
14. - 16.	421	3.99
16. - 18.	493	4.67
18. - 20.	347	3.29
20. - 22.	675	6.40
22. - 24.	757	7.17
24. - 26.	700	6.63
26. - 28.	559	5.30
28. - 30.	550	5.21
30. - 32.	533	5.05
32. - 34.	391	3.71
34. - 36.	177	1.68
36. - 38.	308	2.92
38. - 40.	101	.96
40. - 42.	51	.48
42. - 44.	73	.69
44. - 46.	97	.92
46. - 48.	432	4.09
48. - 50.	283	2.68
50. - 52.	134	1.27
52. - 54.	86	.82
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	1958	18.56
800. - 1000.	327	3.10
1000. - 1200.	160	1.52
1200. - 1400.	250	2.37
1400. - 1600.	817	7.74
1600. - 1800.	1027	9.73
1800. - 2000.	1050	9.95
2000. - 2200.	1133	10.74
2200. - 2400.	1304	12.36
2400. - 2600.	474	4.49
2600. - 2800.	445	4.22
2800. - 3000.	854	8.09
3000. - 3200.	441	4.18
3200. - 3400.	170	1.61
3400. - 3600.	81	.77
3600. - 3800.	31	.29
3800. - 4000.	19	.18
4000. - 4200.	11	.10
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-30.

1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/07/72 RUN 3
RUN DURATION 20.81 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1771.0911	740.6229	7.1585	10704	3920.0000	485.0000	3435.0000
MV	2	12.6168	7.8460	.0758	10704	23.8750	.2250	23.6500
SPD	3	20.7592	14.0807	.1361	10704	53.0667	.0000	53.0667
TP	4	1.9952	2.2021	.0213	10704	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	6573	61.41
NOT	32	.30

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	594	22.20
3	563	21.04
4	1119	41.82
5	400	14.95
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	549	5.13
1. - 2.	1199	11.20
2. - 3.	778	7.27
3. - 4.	329	3.07
4. - 5.	250	2.34
5. - 6.	232	2.17
6. - 7.	193	1.80
7. - 8.	161	1.50
8. - 9.	151	1.41
9. - 10.	167	1.56
10. - 11.	193	1.80
11. - 12.	185	1.73
12. - 13.	229	2.14
13. - 14.	184	1.72
14. - 15.	172	1.61
15. - 16.	202	1.89
16. - 17.	691	6.46
17. - 18.	1441	13.46
18. - 19.	502	4.69
19. - 20.	418	3.91
20. - 21.	791	7.39
21. - 22.	1149	10.73
22. - 23.	467	4.36
23. - 24.	71	.66
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1745	16.30
2. - 4.	172	1.61
4. - 6.	151	1.41
6. - 8.	239	2.23
8. - 10.	262	2.45
10. - 12.	328	3.06
12. - 14.	412	3.85
14. - 16.	558	5.21
16. - 18.	409	3.82
18. - 20.	558	5.21
20. - 22.	830	7.75
22. - 24.	524	4.90
24. - 26.	798	7.46
26. - 28.	758	7.08
28. - 30.	639	5.97
30. - 32.	580	5.42
32. - 34.	257	2.40
34. - 36.	272	2.54
36. - 38.	89	.83
38. - 40.	35	.33
40. - 42.	21	.20
42. - 44.	31	.29
44. - 46.	154	1.44
46. - 48.	154	1.44
48. - 50.	307	2.87
50. - 52.	367	3.43
52. - 54.	54	.50
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	12	.11
600. - 800.	1831	17.11
800. - 1000.	355	3.32
1000. - 1200.	385	3.60
1200. - 1400.	548	5.12
1400. - 1600.	1337	12.49
1600. - 1800.	1155	10.79
1800. - 2000.	1608	15.02
2000. - 2200.	884	8.26
2200. - 2400.	476	4.45
2400. - 2600.	391	3.65
2600. - 2800.	322	3.01
2800. - 3000.	432	4.04
3000. - 3200.	706	6.60
3200. - 3400.	139	1.30
3400. - 3600.	88	.82
3600. - 3800.	27	.25
3800. - 4000.	8	.07
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE E-31.

1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 6 04/07/72 RUN 4
RUN DURATION 23.05 MIN IDLE SPEED 600 RPM IDLE VAC 16.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1757.7690	762.7537	7.1945	11240	4120.0000	285.0000	3835.0000
MV	2	12.4030	7.3594	.0694	11240	23.5500	.1750	23.3750
SPD	3	18.8204	14.2260	.1342	11240	55.0000	.0000	55.0000
TP	4	2.2371	2.3597	.0223	11240	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	6046	53.79
WOT	154	1.37

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	747	26.58
3	461	16.41
4	907	32.28
5	694	24.70
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	482	4.29
1. - 2.	971	8.64
2. - 3.	603	5.36
3. - 4.	409	3.64
4. - 5.	446	3.97
5. - 6.	392	3.49
6. - 7.	273	2.43
7. - 8.	269	2.39
8. - 9.	231	2.06
9. - 10.	217	1.93
10. - 11.	248	2.21
11. - 12.	269	2.39
12. - 13.	276	2.46
13. - 14.	243	2.16
14. - 15.	238	2.12
15. - 16.	240	2.14
16. - 17.	1042	9.27
17. - 18.	1561	13.89
18. - 19.	397	3.53
19. - 20.	348	3.10
20. - 21.	581	5.17
21. - 22.	1078	9.59
22. - 23.	390	3.47
23. - 24.	36	.32
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	2286	20.34
2. - 4.	243	2.16
4. - 6.	217	1.93
6. - 8.	231	2.06
8. - 10.	385	3.43
10. - 12.	676	6.01
12. - 14.	436	3.88
14. - 16.	421	3.75
16. - 18.	424	3.77
18. - 20.	487	4.33
20. - 22.	562	5.00
22. - 24.	733	6.52
24. - 26.	719	6.40
26. - 28.	688	6.12
28. - 30.	454	4.04
30. - 32.	559	4.97
32. - 34.	420	3.74
34. - 36.	122	1.09
36. - 38.	33	.29
38. - 40.	27	.24
40. - 42.	29	.26
42. - 44.	159	1.41
44. - 46.	223	1.98
46. - 48.	268	2.38
48. - 50.	290	2.58
50. - 52.	83	.74
52. - 54.	54	.48
54. - 56.	11	.10
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	2	.02
400. - 600.	22	.20
600. - 800.	2128	18.93
800. - 1000.	477	4.24
1000. - 1200.	422	3.75
1200. - 1400.	557	4.96
1400. - 1600.	999	8.89
1600. - 1800.	1387	12.34
1800. - 2000.	1256	11.17
2000. - 2200.	923	8.21
2200. - 2400.	789	7.02
2400. - 2600.	407	3.62
2600. - 2800.	545	4.85
2800. - 3000.	567	5.04
3000. - 3200.	466	4.15
3200. - 3400.	145	1.29
3400. - 3600.	55	.49
3600. - 3800.	54	.48
3800. - 4000.	31	.28
4000. - 4200.	8	.07
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 8

1972 FORD 27, 500 LB. GVW VAN
WITH 391 CID V-8 ENGINE

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TABLE F-32.
1972 FORD ≤7500 LH GVW VAN 391 CID V8 TRUCK 8 05/01/72 RUN 4
RUN DURATION 21.66 MIN IDLE SPEED 600 RPM IDLE VAC 19.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1599.9434	684.4775	6.5621	10880	3350.0000	175.0000	3175.0000
MV	2	12.9067	7.9851	.0766	10880	23.8000	.6500	≤3.1500
SPD	3	19.6312	14.0507	.1347	10880	52.8000	.0000	52.8000
TP	4	6.7582	1.6404	.0157	10880	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	1959	18.01
NOT	1424	13.09

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	657	24.15
3	429	15.77
4	569	20.92
5	1063	39.08
6	0	.00
7	2	.07

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
. - 1.	≤38	2.19
1. - 2.	1770	16.27
2. - 3.	455	4.18
3. - 4.	216	1.99
4. - 5.	205	1.88
5. - 6.	299	2.75
6. - 7.	256	2.35
7. - 8.	295	2.71
8. - 9.	211	1.94
9. - 10.	207	1.90
10. - 11.	332	3.05
11. - 12.	127	1.17
12. - 13.	150	1.38
13. - 14.	242	2.22
14. - 15.	161	1.48
15. - 16.	219	2.01
16. - 17.	204	1.87
17. - 18.	734	6.75
18. - 19.	1262	11.60
19. - 20.	682	6.27
20. - 21.	454	4.17
21. - 22.	868	7.98
22. - 23.	1172	10.77
23. - 24.	121	1.11
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
. - 2.	1894	17.41
2. - 4.	234	2.15
4. - 6.	221	2.03
6. - 8.	212	1.95
8. - 10.	432	3.97
10. - 12.	478	4.39
12. - 14.	519	4.77
14. - 16.	458	4.21
16. - 18.	496	4.56
18. - 20.	458	4.21
20. - 22.	584	5.37
22. - 24.	657	6.04
24. - 26.	681	6.26
26. - 28.	491	4.51
28. - 30.	825	7.58
30. - 32.	733	6.74
32. - 34.	278	2.56
34. - 36.	86	.79
36. - 38.	35	.32
38. - 40.	36	.33
40. - 42.	91	.84
42. - 44.	96	.88
44. - 46.	119	1.09
46. - 48.	103	.95
48. - 50.	378	3.47
50. - 52.	266	2.44
52. - 54.	19	.17
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
. - 200.	2	.02
200. - 400.	1	.01
400. - 600.	1033	9.49
600. - 800.	788	7.24
800. - 1000.	866	7.96
1000. - 1200.	564	5.18
1200. - 1400.	865	7.95
1400. - 1600.	1072	9.85
1600. - 1800.	1599	14.70
1800. - 2000.	1105	10.16
2000. - 2200.	703	6.46
2200. - 2400.	608	5.59
2400. - 2600.	570	5.24
2600. - 2800.	493	4.53
2800. - 3000.	593	5.45
3000. - 3200.	14	.13
3200. - 3400.	4	.04
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-33.
1972 FORD 27500 LB GVW VAN 391 CID V8 TRUCK B 05/01/72 RUN 5
RUN DURATION 19.80 MIN IDLE SPEED 600 RPM IDLE VAC 19.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1641.4841	551.5135	5.6172	9640	3230.0000	510.0000	2720.0000
MV	2	12.2608	7.8758	.0782	9640	23.1750	.6250	22.5500
SPD	3	21.7635	12.6634	.1290	9640	50.8000	.0000	50.8000
TP	4	6.7400	1.1545	.0118	9640	9.9400	5.2900	4.6500

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	187	1.94
WOT	226	2.34

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	389	16.14
3	394	16.35
4	712	29.54
5	913	37.88
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	421	4.37
1. - 2.	846	8.78
2. - 3.	529	5.49
3. - 4.	561	5.82
4. - 5.	277	2.87
5. - 6.	367	3.81
6. - 7.	277	2.87
7. - 8.	243	2.52
8. - 9.	286	2.97
9. - 10.	252	2.61
10. - 11.	216	2.24
11. - 12.	262	2.72
12. - 13.	197	2.04
13. - 14.	224	2.32
14. - 15.	344	3.57
15. - 16.	334	3.46
16. - 17.	220	2.28
17. - 18.	189	1.96
18. - 19.	408	4.23
19. - 20.	1255	13.02
20. - 21.	388	4.02
21. - 22.	770	7.99
22. - 23.	773	8.02
23. - 24.	1	.01
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	898	9.32
2. - 4.	164	1.70
4. - 6.	174	1.80
6. - 8.	179	1.86
8. - 10.	296	3.07
10. - 12.	310	3.22
12. - 14.	399	4.14
14. - 16.	466	4.83
16. - 18.	580	6.02
18. - 20.	598	6.20
20. - 22.	912	9.46
22. - 24.	741	7.69
24. - 26.	689	7.15
26. - 28.	608	6.31
28. - 30.	776	8.01
30. - 32.	449	4.66
32. - 34.	228	2.37
34. - 36.	37	.38
36. - 38.	36	.37
38. - 40.	36	.37
40. - 42.	40	.41
42. - 44.	71	.74
44. - 46.	174	1.80
46. - 48.	463	4.80
48. - 50.	291	3.02
50. - 52.	29	.30
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	17	.18
600. - 800.	217	2.25
800. - 1000.	1222	12.68
1000. - 1200.	528	5.48
1200. - 1400.	1232	12.78
1400. - 1600.	1524	15.81
1600. - 1800.	1887	19.57
1800. - 2000.	919	9.53
2000. - 2200.	518	5.37
2200. - 2400.	284	2.95
2400. - 2600.	322	3.34
2600. - 2800.	840	8.71
2800. - 3000.	119	1.23
3000. - 3200.	9	.09
3200. - 3400.	2	.02
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-34.

1972 FORD 27500 LB GVW VAN 391 CID V8 TRUCK 8 05/01/72 RUN 6
RUN DURATION 21.97 MIN IDLE SPEED 600 RPM IDLE VAC 19.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1535.8296	603.0940	5.7534	10988	3270.0000	.0000	3270.0000
MV	2	13.4417	7.3732	.0703	10988	23.3500	.4250	22.9250
SPD	3	19.4886	12.6608	.1208	10988	51.6000	.0000	51.6000
TP	4	6.5242	1.1631	.0111	10988	9.9400	1.0300	8.9100

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	545	4.96
OUT	289	2.63

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1	.04
2	638	23.95
3	361	13.14
4	555	20.20
5	1171	42.63
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	73	.66
1. - 2.	1148	10.45
2. - 3.	606	5.52
3. - 4.	418	3.80
4. - 5.	306	2.81
5. - 6.	228	2.07
6. - 7.	189	1.72
7. - 8.	165	1.50
8. - 9.	130	1.18
9. - 10.	330	3.00
10. - 11.	269	2.45
11. - 12.	264	2.40
12. - 13.	303	2.76
13. - 14.	290	2.64
14. - 15.	427	3.89
15. - 16.	352	3.20
16. - 17.	336	3.06
17. - 18.	614	5.59
18. - 19.	719	6.54
19. - 20.	1545	14.06
20. - 21.	592	5.39
21. - 22.	1049	9.55
22. - 23.	564	5.13
23. - 24.	67	.61
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME BS AT

LEVEL	COUNT	PERCENT
. - 2.	1536	13.98
2. - 4.	298	2.71
4. - 6.	232	2.11
6. - 8.	237	2.16
8. - 10.	358	3.26
10. - 12.	503	4.58
12. - 14.	452	4.11
14. - 16.	475	4.32
16. - 18.	556	5.06
18. - 20.	728	6.63
20. - 22.	934	8.50
22. - 24.	765	6.96
24. - 26.	647	5.89
26. - 28.	807	7.34
28. - 30.	670	6.10
30. - 32.	282	2.57
32. - 34.	191	1.74
34. - 36.	158	1.44
36. - 38.	154	1.40
38. - 40.	178	1.62
40. - 42.	116	1.06
42. - 44.	119	1.08
44. - 46.	228	2.08
46. - 48.	202	1.84
48. - 50.	91	.83
50. - 52.	51	.46
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	40	.36
200. - 400.	59	.54
400. - 600.	546	4.97
600. - 800.	701	6.38
800. - 1000.	1178	10.72
1000. - 1200.	740	6.73
1200. - 1400.	1159	10.55
1400. - 1600.	1608	14.63
1600. - 1800.	1520	13.83
1800. - 2000.	909	8.27
2000. - 2200.	771	7.02
2200. - 2400.	595	5.41
2400. - 2600.	620	5.64
2600. - 2800.	440	4.00
2800. - 3000.	91	.83
3000. - 3200.	8	.07
3200. - 3400.	3	.03
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-35.

1972 FORD C7500 LB GVW VAN 341 CID V8 TRUCK A 05/02/72 RUN 1
RUN DURATION 21.55 MIN IDLE SPEED 600 RPM IDLE VAC 19.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1540.4944	673.7272	6.6320	10320	3355.0000	395.0000	2960.0000
MV	2	13.0309	8.3764	.0824	10320	24.4750	.6500	23.8250
SPD	3	20.6135	14.1665	.1394	10320	53.6000	.0000	53.6000
TP	4	6.2404	2.0752	.0204	10320	9.9400	.0000	9.9400

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	2771	26.85
NOT	492	4.77

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	505	19.57
3	286	11.09
4	620	24.03
5	1168	45.27
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	389	3.77
1. - 2.	1678	16.26
2. - 3.	478	4.63
3. - 4.	247	2.39
4. - 5.	212	2.05
5. - 6.	197	1.91
6. - 7.	148	1.43
7. - 8.	216	2.09
8. - 9.	189	1.83
9. - 10.	184	1.78
10. - 11.	177	1.72
11. - 12.	234	2.27
12. - 13.	211	2.04
13. - 14.	136	1.32
14. - 15.	183	1.77
15. - 16.	171	1.66
16. - 17.	129	1.25
17. - 18.	176	1.71
18. - 19.	1773	17.18
19. - 20.	393	3.81
20. - 21.	337	3.27
21. - 22.	606	5.87
22. - 23.	1237	11.99
23. - 24.	520	5.04
24. - 25.	61	.59
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1621	15.71
2. - 4.	169	1.64
4. - 6.	161	1.56
6. - 8.	218	2.09
8. - 10.	264	2.56
10. - 12.	444	4.30
12. - 14.	394	3.82
14. - 16.	492	4.77
16. - 18.	560	5.43
18. - 20.	605	5.86
20. - 22.	682	6.61
22. - 24.	608	5.89
24. - 26.	663	6.42
26. - 28.	578	5.60
28. - 30.	817	7.92
30. - 32.	448	4.34
32. - 34.	424	4.11
34. - 36.	81	.78
36. - 38.	21	.20
38. - 40.	29	.28
40. - 42.	20	.19
42. - 44.	33	.32
44. - 46.	33	.32
46. - 48.	55	.53
48. - 50.	302	2.93
50. - 52.	405	3.92
52. - 54.	195	1.89
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	1213	11.75
600. - 800.	793	7.68
800. - 1000.	492	4.77
1000. - 1200.	509	4.93
1200. - 1400.	928	8.99
1400. - 1600.	1491	14.45
1600. - 1800.	1624	15.74
1800. - 2000.	1056	10.23
2000. - 2200.	475	4.60
2200. - 2400.	341	3.30
2400. - 2600.	285	2.76
2600. - 2800.	504	4.88
2800. - 3000.	591	5.73
3000. - 3200.	7	.07
3200. - 3400.	5	.05
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-36.

1972 FORD <7500 LB GVW VAN 391 CID V8 TRUCK A 05/02/72 RUN 2

RUN DURATION 21.07 MIN IDLE SPEED 600 RPM IDLE VAC 19.0 INCHES HG

VAR NO		MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1486.1384	576.7605	5.6062	10584	3000.0000	475.0000	2525.0000
MV	2	13.0452	7.5911	.0738	10584	23.2750	.5500	22.7250
SPD	3	20.4482	12.8554	.1250	10584	50.2000	.0600	50.1400
TP	4	6.6743	1.2012	.0117	10584	9.9900	.0000	9.9900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	355	3.35
WOT	503	4.75

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	454	17.16
3	206	7.79
4	669	25.28
5	1317	49.77
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	404	3.82
1. - 2.	732	6.92
2. - 3.	636	6.01
3. - 4.	468	4.42
4. - 5.	346	3.27
5. - 6.	287	2.71
6. - 7.	241	2.28
7. - 8.	302	2.85
8. - 9.	315	2.98
9. - 10.	265	2.50
10. - 11.	233	2.20
11. - 12.	282	2.66
12. - 13.	309	2.92
13. - 14.	246	2.23
14. - 15.	269	2.35
15. - 16.	186	1.76
16. - 17.	237	2.24
17. - 18.	320	3.02
18. - 19.	544	5.14
19. - 20.	1815	17.15
20. - 21.	413	3.90
21. - 22.	940	8.88
22. - 23.	785	7.42
23. - 24.	39	.37
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	1419	13.41
2. - 4.	222	2.10
4. - 6.	129	1.22
6. - 8.	135	1.28
8. - 10.	201	1.90
10. - 12.	431	4.07
12. - 14.	527	4.98
14. - 16.	582	5.50
16. - 18.	569	5.38
18. - 20.	788	7.45
20. - 22.	744	7.03
22. - 24.	589	5.57
24. - 26.	980	9.26
26. - 28.	926	8.75
28. - 30.	733	6.93
30. - 32.	237	2.24
32. - 34.	151	1.43
34. - 36.	75	.71
36. - 38.	40	.38
38. - 40.	45	.43
40. - 42.	28	.26
42. - 44.	39	.37
44. - 46.	265	2.50
46. - 48.	582	5.50
48. - 50.	142	1.34
50. - 52.	5	.05
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	25	.24
600. - 800.	1207	11.40
800. - 1000.	1446	13.66
1000. - 1200.	928	8.77
1200. - 1400.	1253	11.84
1400. - 1600.	1809	17.09
1600. - 1800.	1382	13.06
1800. - 2000.	640	6.05
2000. - 2200.	417	3.94
2200. - 2400.	228	2.15
2400. - 2600.	425	4.02
2600. - 2800.	799	7.55
2800. - 3000.	24	.23
3000. - 3200.	1	.01
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-37.

1972 FFORD 27500 LB GVW VAN 391 CID V8 TRUCK B 05/02/72 RUN 3
RUN DURATION 20.79 MIN IDLE SPEED 600 RPM IDLE VAC 19.0 INCHES HG

VAR	NO	MEAN	Std.	Std. Of Mean	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1550.7488	607.4374	5.9111	10560	3085.0000	390.0000	2695.0000
MV	2	13.4399	7.0942	.0690	10560	23.5500	.7500	22.8000
SPD	3	20.3849	13.6659	.1330	10560	52.7333	.0000	52.7333
TP	4	6.5218	1.0789	.0105	10560	9.8500	5.1200	4.7300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	703	6.66
OUT	246	2.33

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	514	19.66
3	232	8.79
4	532	20.15
5	1354	51.29
6	0	.00
7	3	.11

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	104	.98
1. - 2.	516	4.89
2. - 3.	647	6.13
3. - 4.	331	3.13
4. - 5.	343	3.25
5. - 6.	493	4.67
6. - 7.	386	3.66
7. - 8.	325	3.08
8. - 9.	383	3.63
9. - 10.	183	1.73
10. - 11.	213	2.02
11. - 12.	290	2.75
12. - 13.	281	2.66
13. - 14.	383	3.63
14. - 15.	276	2.61
15. - 16.	340	3.22
16. - 17.	248	2.35
17. - 18.	372	3.52
18. - 19.	805	7.62
19. - 20.	1700	16.10
20. - 21.	432	4.09
21. - 22.	742	7.03
22. - 23.	641	6.07
23. - 24.	126	1.19
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1669	15.80
2. - 4.	131	1.24
4. - 6.	176	1.67
6. - 8.	193	1.83
8. - 10.	279	2.64
10. - 12.	434	4.11
12. - 14.	348	3.30
14. - 16.	497	4.71
16. - 18.	610	5.78
18. - 20.	581	5.50
20. - 22.	639	6.05
22. - 24.	797	7.55
24. - 26.	1090	10.32
26. - 28.	540	5.11
28. - 30.	451	4.27
30. - 32.	693	6.56
32. - 34.	228	2.16
34. - 36.	96	.91
36. - 38.	27	.26
38. - 40.	28	.27
40. - 42.	26	.25
42. - 44.	33	.31
44. - 46.	119	1.13
46. - 48.	220	2.08
48. - 50.	355	3.36
50. - 52.	285	2.70
52. - 54.	15	.14
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	139	1.32
600. - 800.	1057	10.01
800. - 1000.	1184	11.21
1000. - 1200.	510	4.83
1200. - 1400.	1468	13.90
1400. - 1600.	1740	16.48
1600. - 1800.	1502	14.22
1800. - 2000.	888	8.41
2000. - 2200.	467	4.42
2200. - 2400.	298	2.82
2400. - 2600.	302	2.86
2600. - 2800.	568	5.38
2800. - 3000.	434	4.11
3000. - 3200.	2	.02
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 9

1972 FORD 24,000 LB. GVW VAN
WITH 330 CID V-8 ENGINE

TABLE F-38.

1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK 9 05/16/72 RUN 1
RUN DURATION 22.65 MIN IDLE SPEED 500 RPM IDLE VAC 18.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1432.9290	589.2666	5.9819	9704	3080.0000	395.0000	2685.0000
MV	2	11.1776	7.3388	.0745	9704	41.8000	.2250	41.5750
SPD	3	18.7521	13.2151	.1342	9704	49.1333	.0000	49.1333
TP	4	4.3288	1.3657	.0139	9704	7.5200	3.3300	4.1900

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	5472	56.39
OUT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	548	24.65
3	272	11.21
4	463	19.08
5	1093	45.05
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	1111	11.45
1. - 2.	951	9.80
2. - 3.	249	2.57
3. - 4.	331	3.41
4. - 5.	325	3.35
5. - 6.	220	2.27
6. - 7.	283	2.92
7. - 8.	241	2.48
8. - 9.	294	3.03
9. - 10.	195	2.01
10. - 11.	212	2.18
11. - 12.	234	2.41
12. - 13.	128	1.32
13. - 14.	188	1.92
14. - 15.	193	1.99
15. - 16.	362	3.73
16. - 17.	1724	17.77
17. - 18.	293	3.02
18. - 19.	347	3.58
19. - 20.	765	7.88
20. - 21.	949	9.78
21. - 22.	111	1.14
22. - 23.	0	.00
23. - 24.	0	.00
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1762	18.16
2. - 4.	222	2.29
4. - 6.	186	1.92
6. - 8.	283	2.92
8. - 10.	414	4.27
10. - 12.	313	3.23
12. - 14.	361	3.72
14. - 16.	360	3.71
16. - 18.	497	5.12
18. - 20.	457	4.71
20. - 22.	593	6.11
22. - 24.	766	7.89
24. - 26.	681	7.02
26. - 28.	574	5.92
28. - 30.	566	5.85
30. - 32.	398	4.10
32. - 34.	193	1.99
34. - 36.	62	.64
36. - 38.	53	.55
38. - 40.	89	.92
40. - 42.	174	1.84
42. - 44.	222	2.29
44. - 46.	251	2.59
46. - 48.	166	1.71
48. - 50.	54	.56
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	250	2.58
600. - 800.	1788	18.43
800. - 1000.	467	4.81
1000. - 1200.	913	9.41
1200. - 1400.	1285	13.24
1400. - 1600.	1481	15.26
1600. - 1800.	1277	13.16
1800. - 2000.	596	6.14
2000. - 2200.	319	3.29
2200. - 2400.	437	4.50
2400. - 2600.	556	5.73
2600. - 2800.	320	3.30
2800. - 3000.	8	.08
3000. - 3200.	6	.06
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-39.
1972 FORD 24000 LB GVW VAN 330 CID V8 TRUCK @ 05/16/72 RUN 2
RUN DURATION 19.89 MIN IDLE SPEED 500 RPM IDLE VAC 18.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1573.2273	585.4784	6.7390	7548	2955.0000	590.0000	2365.0000
MV	2	11.6781	7.3618	.0847	7548	21.7000	.3750	21.3250
SPD	3	20.7129	12.3057	.1416	7548	49.3333	.0000	49.3333
TP	4	4.2165	1.1545	.0133	7548	7.5000	3.3500	4.1500

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	4231	56.05
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	349	18.49
3	191	10.12
4	546	28.93
5	801	42.45
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	605	8.02
1. - 2.	779	10.32
2. - 3.	381	5.05
3. - 4.	288	3.82
4. - 5.	206	2.73
5. - 6.	162	2.15
6. - 7.	121	1.60
7. - 8.	102	1.35
8. - 9.	148	1.96
9. - 10.	234	3.10
10. - 11.	213	2.82
11. - 12.	180	2.38
12. - 13.	158	2.09
13. - 14.	208	2.76
14. - 15.	146	1.93
15. - 16.	130	1.72
16. - 17.	1092	14.47
17. - 18.	445	5.90
18. - 19.	341	4.52
19. - 20.	580	7.68
20. - 21.	961	12.47
21. - 22.	88	1.17
22. - 23.	0	.00
23. - 24.	0	.00
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	982	13.01
2. - 4.	79	1.05
4. - 6.	93	1.23
6. - 8.	172	2.28
8. - 10.	200	2.65
10. - 12.	280	3.71
12. - 14.	334	4.43
14. - 16.	426	5.64
16. - 18.	445	5.90
18. - 20.	385	5.10
20. - 22.	625	8.28
22. - 24.	487	6.45
24. - 26.	255	3.38
26. - 28.	282	3.74
28. - 30.	760	10.07
30. - 32.	565	7.49
32. - 34.	255	3.38
34. - 36.	94	1.25
36. - 38.	187	2.48
38. - 40.	119	1.58
40. - 42.	153	2.03
42. - 44.	146	1.93
44. - 46.	142	1.88
46. - 48.	60	.79
48. - 50.	22	.29
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	2	.03
600. - 800.	1252	16.59
800. - 1000.	265	3.51
1000. - 1200.	533	7.06
1200. - 1400.	845	11.20
1400. - 1600.	674	8.93
1600. - 1800.	1464	19.40
1800. - 2000.	763	10.11
2000. - 2200.	508	6.73
2200. - 2400.	542	7.18
2400. - 2600.	386	5.11
2600. - 2800.	269	3.56
2800. - 3000.	45	.60
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 10

1972 FORD 19,200 LB. GVW VAN
WITH 361 CID V-8 ENGINE

TABLE F-40.
1972 FORD 361 CID V8 TRUCK IO 05/26/72 RUN 1
RUN DURATION 29.05 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1485.0710	658.6337	5.8125	12840	3295.0000	350.0000	2945.0000
MV	2	14.7755	6.4282	.0567	12840	24.3250	.3750	23.9500
SPD	3	18.0001	13.8307	.1221	12840	50.2667	.0000	50.2667
TP	4	2.4741	.5866	.0052	12840	5.8900	1.8200	4.0700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
NOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	2	.02
2	1203	37.48
3	475	14.80
4	1123	34.98
5	404	12.59
6	1	.03
7	1	.03

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	137	1.07
1. - 2.	469	3.65
2. - 3.	270	2.10
3. - 4.	338	2.63
4. - 5.	336	2.62
5. - 6.	331	2.58
6. - 7.	405	3.15
7. - 8.	250	1.95
8. - 9.	332	2.59
9. - 10.	278	2.17
10. - 11.	370	2.88
11. - 12.	329	2.56
12. - 13.	423	3.29
13. - 14.	331	2.58
14. - 15.	444	3.46
15. - 16.	381	2.97
16. - 17.	478	3.72
17. - 18.	2604	20.28
18. - 19.	1054	8.21
19. - 20.	468	3.64
20. - 21.	642	5.00
21. - 22.	550	4.28
22. - 23.	1033	8.05
23. - 24.	521	4.06
24. - 25.	60	.47
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	2985	23.25
2. - 4.	312	2.43
4. - 6.	277	2.16
6. - 8.	298	2.32
8. - 10.	313	2.44
10. - 12.	437	3.40
12. - 14.	362	2.82
14. - 16.	480	3.74
16. - 18.	698	5.44
18. - 20.	679	5.29
20. - 22.	577	4.49
22. - 24.	684	5.33
24. - 26.	821	6.39
26. - 28.	1049	8.17
28. - 30.	681	5.30
30. - 32.	574	4.47
32. - 34.	202	1.57
34. - 36.	58	.45
36. - 38.	94	.73
38. - 40.	120	.93
40. - 42.	200	1.56
42. - 44.	252	1.96
44. - 46.	255	1.99
46. - 48.	334	2.60
48. - 50.	95	.74
50. - 52.	3	.02
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	5	.04
400. - 600.	238	1.85
600. - 800.	3174	24.72
800. - 1000.	465	3.62
1000. - 1200.	711	5.54
1200. - 1400.	976	7.60
1400. - 1600.	1976	15.39
1600. - 1800.	903	7.03
1800. - 2000.	879	6.85
2000. - 2200.	1224	9.53
2200. - 2400.	1150	8.96
2400. - 2600.	686	5.37
2600. - 2800.	246	1.92
2800. - 3000.	126	.98
3000. - 3200.	69	.54
3200. - 3400.	9	.07
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-41.

1972 FORD 361 CID V8 TRUCK 10 05/26/72 RUN 2

RUN DURATION 21.47 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1461.5674	599.3258	5.7081	11024	3025.0000	420.0000	2605.0000
MV	2	13.6723	7.7126	.0735	11024	24.3500	.0000	24.3500
SPD	3	21.3438	14.7881	.1408	11024	56.5333	.0000	56.5333
TP	4	2.8084	1.1412	.0109	11024	6.0900	1.8900	4.2000

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	353	3.20

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	3	.11
2	752	27.29
3	427	15.49
4	1573	57.08
5	1	.04
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	714	6.48
1. - 2.	834	7.57
2. - 3.	250	2.27
3. - 4.	340	3.08
4. - 5.	218	1.98
5. - 6.	272	2.47
6. - 7.	306	2.78
7. - 8.	262	2.38
8. - 9.	199	1.81
9. - 10.	255	2.31
10. - 11.	307	2.97
11. - 12.	243	2.20
12. - 13.	172	1.56
13. - 14.	210	1.90
14. - 15.	236	2.14
15. - 16.	250	2.27
16. - 17.	288	2.61
17. - 18.	1535	13.92
18. - 19.	895	8.12
19. - 20.	336	3.05
20. - 21.	535	4.85
21. - 22.	774	7.02
22. - 23.	1056	9.58
23. - 24.	443	4.02
24. - 25.	74	.67
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1575	14.29
2. - 4.	207	1.88
4. - 6.	304	2.76
6. - 8.	346	3.14
8. - 10.	408	3.70
10. - 12.	268	2.43
12. - 14.	282	2.56
14. - 16.	447	4.05
16. - 18.	729	6.61
18. - 20.	652	5.91
20. - 22.	693	6.29
22. - 24.	546	4.95
24. - 26.	491	4.45
26. - 28.	461	4.18
28. - 30.	656	5.95
30. - 32.	702	6.37
32. - 34.	529	4.80
34. - 36.	441	4.00
36. - 38.	141	1.28
38. - 40.	53	.48
40. - 42.	30	.27
42. - 44.	25	.23
44. - 46.	30	.27
46. - 48.	31	.28
48. - 50.	61	.55
50. - 52.	314	2.85
52. - 54.	425	3.86
54. - 56.	162	1.47
56. - 58.	15	.14
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	90	.82
600. - 800.	2096	19.01
800. - 1000.	626	5.68
1000. - 1200.	868	7.87
1200. - 1400.	1089	9.88
1400. - 1600.	1982	17.98
1600. - 1800.	1857	16.85
1800. - 2000.	721	6.54
2000. - 2200.	311	2.82
2200. - 2400.	240	2.18
2400. - 2600.	187	1.70
2600. - 2800.	897	8.14
2800. - 3000.	58	.53
3000. - 3200.	2	.02
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-42.

1972 FORD 361 CID V8 TRUCK 10 05/30/72 RUN 1

RUN DURATION 19.24 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1564.8396	600.9594	6.1335	9600	3415.0000	450.0000	2965.0000
MV	2	12.9825	8.4341	.0861	9600	24.3250	.4750	23.8500
SPD	3	23.8329	13.5681	.1387	9600	53.8667	.0000	53.8667
TP	4	2.8844	1.0828	.0111	9600	5.9700	1.8800	4.0900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	51	.53

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1	.04
2	538	22.42
3	304	12.67
4	1488	62.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	451	4.70
1. - 2.	1204	12.54
2. - 3.	719	7.49
3. - 4.	382	3.98
4. - 5.	250	2.60
5. - 6.	177	1.84
6. - 7.	206	2.15
7. - 8.	91	.95
8. - 9.	105	1.09
9. - 10.	106	1.10
10. - 11.	102	1.06
11. - 12.	103	1.07
12. - 13.	227	2.36
13. - 14.	184	1.92
14. - 15.	200	2.08
15. - 16.	167	1.74
16. - 17.	153	1.59
17. - 18.	1225	12.76
18. - 19.	504	5.25
19. - 20.	251	2.61
20. - 21.	425	4.43
21. - 22.	544	5.67
22. - 23.	1075	11.20
23. - 24.	689	7.18
24. - 25.	60	.63
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1082	11.27
2. - 4.	122	1.27
4. - 6.	133	1.39
6. - 8.	127	1.32
8. - 10.	201	2.09
10. - 12.	217	2.26
12. - 14.	341	3.55
14. - 16.	514	5.35
16. - 18.	440	4.58
18. - 20.	471	4.91
20. - 22.	320	3.33
22. - 24.	404	4.21
24. - 26.	539	5.61
26. - 28.	682	7.10
28. - 30.	660	6.87
30. - 32.	558	5.81
32. - 34.	886	9.23
34. - 36.	412	4.29
36. - 38.	223	2.32
38. - 40.	143	1.49
40. - 42.	111	1.16
42. - 44.	173	1.80
44. - 46.	262	2.73
46. - 48.	239	2.49
48. - 50.	109	1.14
50. - 52.	166	1.73
52. - 54.	65	.68
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	44	.46
600. - 800.	1396	14.54
800. - 1000.	437	4.55
1000. - 1200.	621	6.47
1200. - 1400.	1291	13.45
1400. - 1600.	1289	13.43
1600. - 1800.	1608	16.75
1800. - 2000.	664	6.92
2000. - 2200.	470	4.90
2200. - 2400.	717	7.47
2400. - 2600.	509	5.30
2600. - 2800.	401	4.18
2800. - 3000.	78	.81
3000. - 3200.	50	.52
3200. - 3400.	24	.25
3400. - 3600.	1	.01
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-43.
1972 FORD 361 CID V8 TRUCK 10 05/31/72 RUN 2
RUN DURATION 18.07 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1563.0925	591.5752	6.2636	8920	3460.0000	550.0000	2910.0000
MV	2	12.8260	8.5606	.0906	8920	24.6750	.1500	24.5250
SPD	3	25.1397	13.8795	.1470	8920	57.3333	.0000	57.3333
TP	4	2.9204	1.1293	.0120	8920	5.9400	1.7700	4.1700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	3	.03
WOT	37	.41

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	305	13.68
3	520	23.32
4	1405	63.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	326	3.65
1. - 2.	1204	13.50
2. - 3.	820	9.19
3. - 4.	245	2.75
4. - 5.	222	2.49
5. - 6.	145	1.63
6. - 7.	201	2.25
7. - 8.	217	2.43
8. - 9.	131	1.47
9. - 10.	150	1.68
10. - 11.	140	1.57
11. - 12.	163	1.83
12. - 13.	136	1.52
13. - 14.	148	1.66
14. - 15.	157	1.76
15. - 16.	121	1.36
16. - 17.	148	1.66
17. - 18.	314	3.52
18. - 19.	1018	11.41
19. - 20.	262	2.94
20. - 21.	373	4.18
21. - 22.	471	5.28
22. - 23.	863	9.67
23. - 24.	870	9.75
24. - 25.	75	.84
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	907	10.17
2. - 4.	84	.94
4. - 6.	82	.92
6. - 8.	80	.90
8. - 10.	91	1.02
10. - 12.	128	1.43
12. - 14.	180	2.02
14. - 16.	454	5.09
16. - 18.	452	5.07
18. - 20.	487	5.46
20. - 22.	571	6.40
22. - 24.	518	5.81
24. - 26.	645	7.23
26. - 28.	492	5.52
28. - 30.	597	6.69
30. - 32.	604	6.77
32. - 34.	610	6.84
34. - 36.	491	5.50
36. - 38.	218	2.44
38. - 40.	110	1.23
40. - 42.	64	.72
42. - 44.	50	.56
44. - 46.	112	1.26
46. - 48.	177	1.98
48. - 50.	103	1.15
50. - 52.	166	1.86
52. - 54.	252	2.83
54. - 56.	142	1.59
56. - 58.	13	.15
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	10	.11
600. - 800.	1240	13.90
800. - 1000.	388	4.35
1000. - 1200.	614	6.88
1200. - 1400.	1168	13.09
1400. - 1600.	1465	16.42
1600. - 1800.	1491	16.72
1800. - 2000.	736	8.25
2000. - 2200.	337	3.78
2200. - 2400.	430	4.82
2400. - 2600.	381	4.27
2600. - 2800.	544	6.10
2800. - 3000.	52	.58
3000. - 3200.	35	.39
3200. - 3400.	21	.24
3400. - 3600.	8	.09
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-44.
1972 FORD 361 CID V8 TRUCK 10 05/31/72 RUN 3
RUN DURATION 23.20 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1579.3303	727.3596	6.6982	11792	3775.0000	450.0000	3325.0000
MV	2	14.4500	7.4172	.0683	11792	24.7750	.3750	24.4000
SPD	3	16.5109	12.5755	.1158	11792	54.6667	.0000	54.6667
TP	4	2.6373	.8466	.0078	11792	5.8700	1.8800	3.9900

PERCENT OF TIME THROTILE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	1085	36.80
3	664	22.52
4	1196	40.57
5	0	.00
6	0	.00
7	3	.10

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	149	1.26
1. - 2.	732	6.21
2. - 3.	636	5.39
3. - 4.	452	3.83
4. - 5.	384	3.26
5. - 6.	264	2.24
6. - 7.	218	1.85
7. - 8.	233	1.98
8. - 9.	247	2.09
9. - 10.	220	1.87
10. - 11.	202	1.71
11. - 12.	252	2.14
12. - 13.	289	2.45
13. - 14.	234	1.98
14. - 15.	207	1.76
15. - 16.	200	1.70
16. - 17.	227	1.93
17. - 18.	972	8.24
18. - 19.	2172	18.42
19. - 20.	482	4.09
20. - 21.	554	4.70
21. - 22.	588	4.99
22. - 23.	815	6.91
23. - 24.	885	7.51
24. - 25.	178	1.51
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2304	19.54
2. - 4.	210	1.78
4. - 6.	201	1.70
6. - 8.	436	3.70
8. - 10.	960	8.14
10. - 12.	824	6.99
12. - 14.	649	5.50
14. - 16.	423	3.59
16. - 18.	402	3.41
18. - 20.	572	4.85
20. - 22.	694	5.89
22. - 24.	386	3.27
24. - 26.	434	3.68
26. - 28.	444	3.77
28. - 30.	392	3.32
30. - 32.	646	5.48
32. - 34.	518	4.39
34. - 36.	592	5.02
36. - 38.	432	3.66
38. - 40.	143	1.21
40. - 42.	14	.12
42. - 44.	7	.06
44. - 46.	1	.01
46. - 48.	1	.01
48. - 50.	19	.16
50. - 52.	30	.25
52. - 54.	36	.31
54. - 56.	22	.19
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	163	1.38
600. - 800.	2736	23.20
800. - 1000.	528	4.48
1000. - 1200.	706	5.99
1200. - 1400.	517	4.38
1400. - 1600.	1127	9.56
1600. - 1800.	1445	12.25
1800. - 2000.	1297	11.00
2000. - 2200.	831	7.05
2200. - 2400.	589	5.50
2400. - 2600.	722	6.12
2600. - 2800.	557	4.72
2800. - 3000.	167	1.42
3000. - 3200.	131	1.11
3200. - 3400.	115	.98
3400. - 3600.	65	.55
3600. - 3800.	36	.31
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-45.

1972 FORD 351 CID V8 TRUCK IN 05/31/72 RUN 4

RUN DURATION 21.27 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1472.1274	587.4188	5.6110	10960	3350.0000	270.0000	3080.0000
MV	2	13.9306	4.0531	.0769	10960	24.8750	.6250	24.2500
SPD	3	21.3220	13.5910	.1298	10960	51.7333	.0000	51.7333
TP	4	2.0862	.9727	.0093	10960	5.8400	1.8300	4.0100

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	0	.00
NOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	694	25.33
3	644	23.50
4	1402	51.17
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
. - 1.	<	159	1.45
1. - 2.		1013	9.24
2. - 3.		839	7.66
3. - 4.		390	3.56
4. - 5.		312	2.85
5. - 6.		230	2.10
6. - 7.		226	2.06
7. - 8.		250	2.28
8. - 9.		205	1.87
9. - 10.		200	1.82
10. - 11.		179	1.63
11. - 12.		177	1.61
12. - 13.		129	1.18
13. - 14.		141	1.29
14. - 15.		161	1.47
15. - 16.		185	1.69
16. - 17.		282	2.57
17. - 18.		1424	12.99
18. - 19.		918	8.38
19. - 20.		234	2.14
20. - 21.		384	3.50
21. - 22.		605	5.52
22. - 23.		1134	10.35
23. - 24.		918	8.38
24. - 25.		265	2.42
25. - 26.		0	.00
26. - 27.		0	.00
27. - 28.		0	.00
28. - 29.		0	.00
29. - 30.		0	.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
. - 2.	<	1726	15.75
2. - 4.		183	1.67
4. - 6.		207	1.89
6. - 8.		236	2.15
8. - 10.		203	1.85
10. - 12.		230	2.10
12. - 14.		292	2.66
14. - 16.		357	3.26
16. - 18.		470	4.29
18. - 20.		645	5.89
20. - 22.		912	8.32
22. - 24.		673	6.14
24. - 26.		584	5.33
26. - 28.		816	7.45
28. - 30.		590	5.38
30. - 32.		738	6.73
32. - 34.		195	1.78
34. - 36.		258	2.35
36. - 38.		205	1.87
38. - 40.		271	2.47
40. - 42.		226	2.06
42. - 44.		322	2.94
44. - 46.		289	2.64
46. - 48.		208	1.90
48. - 50.		73	.67
50. - 52.		51	.47
52. - 54.		0	.00
54. - 56.		0	.00
56. - 58.		0	.00
58. - 60.		0	.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
. - 200.	<	0	.00
200. - 400.		5	.05
400. - 600.		154	1.41
600. - 800.		1999	18.24
800. - 1000.		371	3.39
1000. - 1200.		1022	9.32
1200. - 1400.		1508	13.76
1400. - 1600.		1726	15.75
1600. - 1800.		1050	9.58
1800. - 2000.		854	7.79
2000. - 2200.		761	6.94
2200. - 2400.		851	7.76
2400. - 2600.		367	3.35
2600. - 2800.		127	1.16
2800. - 3000.		94	.86
3000. - 3200.		56	.51
3200. - 3400.		15	.14
3400. - 3600.		0	.00
3600. - 3800.		0	.00
3800. - 4000.		0	.00
4000. - 4200.		0	.00
4200. - 4400.		0	.00
4400. - 4600.		0	.00
4600. - 4800.		0	.00
4800. - 5000.		0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 11

1970 DODGE 24,000 LB. GVW VAN
WITH 318 CID V-8 ENGINE

TABLE F-46.

1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/13/72 RUN 3
RUN DURATION 20.97 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1696.4451	739.9604	7.1229	10792	4695.0000	100.0000	4595.0000
MV	2	14.0958	8.2258	.0792	10792	24.9750	.0000	24.9750
SPD	3	21.8515	14.7548	.1420	10792	54.6667	.0000	54.6667
TP	4	5.3463	.9885	.0095	10792	7.8500	.5400	7.3100

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	4557	42.23
NOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	624	23.13
3	468	17.35
4	1604	59.45
5	0	.00
6	0	.00
7	2	.07

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
. - 1.	281	2.60
1. - 2.	590	5.47
2. - 3.	470	4.36
3. - 4.	396	3.67
4. - 5.	556	5.15
5. - 6.	451	4.18
6. - 7.	460	4.26
7. - 8.	401	3.72
8. - 9.	402	3.72
9. - 10.	275	2.55
10. - 11.	141	1.31
11. - 12.	136	1.26
12. - 13.	155	1.44
13. - 14.	142	1.32
14. - 15.	203	1.88
15. - 16.	208	1.93
16. - 17.	130	1.20
17. - 18.	276	2.56
18. - 19.	244	2.26
19. - 20.	1323	12.26
20. - 21.	843	7.81
21. - 22.	325	3.01
22. - 23.	294	2.72
23. - 24.	956	8.86
24. - 25.	1134	10.51
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
. - 2.	1754	16.25
2. - 4.	202	1.87
4. - 6.	184	1.70
6. - 8.	207	1.92
8. - 10.	243	2.25
10. - 12.	320	2.97
12. - 14.	413	3.83
14. - 16.	376	3.48
16. - 18.	385	3.57
18. - 20.	429	3.98
20. - 22.	459	4.25
22. - 24.	662	6.13
24. - 26.	798	7.39
26. - 28.	640	5.93
28. - 30.	782	7.25
30. - 32.	656	6.08
32. - 34.	599	5.55
34. - 36.	430	3.98
36. - 38.	84	.78
38. - 40.	33	.31
40. - 42.	24	.22
42. - 44.	23	.21
44. - 46.	42	.39
46. - 48.	76	.70
48. - 50.	230	2.13
50. - 52.	483	4.48
52. - 54.	237	2.20
54. - 56.	21	.19
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
. - 200.	6	.06
200. - 400.	13	.12
400. - 600.	122	1.13
600. - 800.	2106	19.51
800. - 1000.	277	2.57
1000. - 1200.	405	3.75
1200. - 1400.	566	5.24
1400. - 1600.	1148	10.64
1600. - 1800.	1231	11.41
1800. - 2000.	1400	12.97
2000. - 2200.	1270	11.77
2200. - 2400.	650	6.02
2400. - 2600.	330	3.06
2600. - 2800.	230	2.13
2800. - 3000.	155	1.44
3000. - 3200.	387	3.59
3200. - 3400.	495	4.59
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	1	.01
4800. - 5000.	0	.00

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TABLE F-47.

1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/14/72 RUN 1
RUN DURATION 20.52 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1883.1133	778.1284	7.5736	10556	3495.0000	380.0000	3115.0000
MV	2	13.4332	8.0811	.0787	10556	24.9750	.0000	24.9750
SPD	3	22.0001	14.7436	.1435	10556	53.8667	.0000	53.8667
TP	4	5.6436	.9460	.0092	10556	7.8500	4.3600	3.4900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	14	.13
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	620	23.49
3	463	17.54
4	1552	58.81
5	1	.04
6	1	.04
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	471	4.46
1. - 2.	346	3.28
2. - 3.	487	4.61
3. - 4.	447	4.23
4. - 5.	452	4.28
5. - 6.	478	4.53
6. - 7.	519	4.92
7. - 8.	427	4.05
8. - 9.	361	3.42
9. - 10.	353	3.34
10. - 11.	222	2.10
11. - 12.	371	3.51
12. - 13.	222	2.10
13. - 14.	246	2.33
14. - 15.	151	1.43
15. - 16.	256	2.43
16. - 17.	221	2.09
17. - 18.	169	1.60
18. - 19.	95	.90
19. - 20.	313	2.97
20. - 21.	1882	17.83
21. - 22.	231	2.19
22. - 23.	222	2.10
23. - 24.	547	5.18
24. - 25.	1067	10.11
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1756	16.64
2. - 4.	163	1.54
4. - 6.	140	1.33
6. - 8.	172	1.63
8. - 10.	200	1.89
10. - 12.	303	2.87
12. - 14.	444	4.21
14. - 16.	457	4.33
16. - 18.	404	3.83
18. - 20.	467	4.42
20. - 22.	462	4.38
22. - 24.	543	5.14
24. - 26.	739	7.00
26. - 28.	709	6.72
28. - 30.	541	5.13
30. - 32.	522	4.95
32. - 34.	511	4.84
34. - 36.	466	4.41
36. - 38.	287	2.72
38. - 40.	156	1.48
40. - 42.	27	.26
42. - 44.	38	.36
44. - 46.	40	.38
46. - 48.	129	1.22
48. - 50.	407	3.86
50. - 52.	376	3.56
52. - 54.	97	.92
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	8	.08
600. - 800.	1929	18.27
800. - 1000.	164	1.55
1000. - 1200.	244	2.31
1200. - 1400.	336	3.18
1400. - 1600.	692	6.56
1600. - 1800.	1309	12.40
1800. - 2000.	1069	10.13
2000. - 2200.	1217	11.53
2200. - 2400.	1026	9.72
2400. - 2600.	805	7.63
2600. - 2800.	379	3.59
2800. - 3000.	250	2.37
3000. - 3200.	231	2.19
3200. - 3400.	839	7.95
3400. - 3600.	57	.54
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-48.

1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/14/72 RUN 2
RUN DURATION 20.34 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1783.6248	698.6266	6.8466	10412	3765.0000	180.0000	3585.0000
MV	2	13.3972	8.4423	.0827	10412	24.9750	.0000	24.9750
SPD	3	22.5528	13.5495	.1328	10412	56.3333	.0000	56.3333
TP	4	5.4977	.9065	.0089	10412	7.5500	4.3900	3.1600

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	2745	26.36
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	459	17.63
3	382	14.68
4	1761	67.65
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
< . - 1.	323	3.10
1. - 2.	390	3.75
2. - 3.	509	4.89
3. - 4.	611	5.87
4. - 5.	689	6.62
5. - 6.	821	7.89
6. - 7.	582	5.59
7. - 8.	214	2.06
8. - 9.	235	2.26
9. - 10.	150	1.44
10. - 11.	118	1.13
11. - 12.	192	1.84
12. - 13.	197	1.89
13. - 14.	108	1.04
14. - 15.	120	1.15
15. - 16.	159	1.53
16. - 17.	383	3.68
17. - 18.	159	1.53
18. - 19.	126	1.21
19. - 20.	459	4.41
20. - 21.	1343	12.90
21. - 22.	215	2.06
22. - 23.	324	3.11
23. - 24.	843	8.10
24. - 25.	1142	10.97
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
< . - 2.	1361	13.07
2. - 4.	163	1.57
4. - 6.	126	1.21
6. - 8.	137	1.32
8. - 10.	179	1.72
10. - 12.	314	3.02
12. - 14.	438	4.21
14. - 16.	323	3.10
16. - 18.	525	5.04
18. - 20.	655	6.29
20. - 22.	604	5.80
22. - 24.	510	4.90
24. - 26.	532	5.11
26. - 28.	786	7.55
28. - 30.	890	8.55
30. - 32.	538	5.17
32. - 34.	530	5.09
34. - 36.	361	3.47
36. - 38.	299	2.87
38. - 40.	159	1.53
40. - 42.	84	.81
42. - 44.	188	1.81
44. - 46.	107	1.03
46. - 48.	123	1.18
48. - 50.	158	1.52
50. - 52.	163	1.57
52. - 54.	93	.89
54. - 56.	62	.60
56. - 58.	4	.04
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
< . - 200.	1	.01
200. - 400.	3	.03
400. - 600.	6	.06
600. - 800.	1610	15.46
800. - 1000.	288	2.77
1000. - 1200.	401	3.85
1200. - 1400.	677	6.50
1400. - 1600.	897	8.62
1600. - 1800.	957	9.19
1800. - 2000.	1742	16.73
2000. - 2200.	1118	10.74
2200. - 2400.	921	8.85
2400. - 2600.	626	6.01
2600. - 2800.	282	2.71
2800. - 3000.	347	3.33
3000. - 3200.	147	1.41
3200. - 3400.	257	2.47
3400. - 3600.	119	1.14
3600. - 3800.	13	.12
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-49.

1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/14/72 RUN 3

RUN DURATION 20.62 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1742.8794	691.1857	6.7299	10548	3375.0000	375.0000	3000.0000
MV	2	13.5251	8.0378	.0783	10548	24.9750	.0000	24.9750
SPD	3	22.2076	13.4836	.1313	10548	52.0667	.0000	52.0667
TP	4	5.3917	.8538	.0083	10548	7.8300	4.3100	3.5200

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	3834	36.35
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	521	19.76
3	367	13.92
4	1748	66.29
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	399	3.78
1. - 2.	228	2.16
2. - 3.	544	5.16
3. - 4.	583	5.53
4. - 5.	462	4.38
5. - 6.	547	5.19
6. - 7.	485	4.60
7. - 8.	377	3.57
8. - 9.	319	3.02
9. - 10.	306	2.90
10. - 11.	197	1.87
11. - 12.	340	3.22
12. - 13.	221	2.10
13. - 14.	228	2.16
14. - 15.	210	1.99
15. - 16.	307	2.91
16. - 17.	267	2.53
17. - 18.	193	1.83
18. - 19.	244	2.31
19. - 20.	489	4.64
20. - 21.	1381	13.09
21. - 22.	214	2.03
22. - 23.	241	2.28
23. - 24.	732	6.94
24. - 25.	1034	9.80
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1443	13.68
2. - 4.	216	2.05
4. - 6.	158	1.50
6. - 8.	176	1.67
8. - 10.	228	2.16
10. - 12.	354	3.36
12. - 14.	450	4.27
14. - 16.	308	2.92
16. - 18.	428	4.06
18. - 20.	676	6.41
20. - 22.	542	5.14
22. - 24.	495	4.69
24. - 26.	455	4.31
26. - 28.	557	5.28
28. - 30.	905	8.58
30. - 32.	600	5.69
32. - 34.	530	5.02
34. - 36.	425	4.03
36. - 38.	340	3.22
38. - 40.	243	2.30
40. - 42.	213	2.02
42. - 44.	113	1.07
44. - 46.	257	2.44
46. - 48.	307	2.91
48. - 50.	81	.77
50. - 52.	47	.45
52. - 54.	1	.01
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	3	.03
400. - 600.	159	1.51
600. - 800.	1658	15.72
800. - 1000.	264	2.50
1000. - 1200.	370	3.51
1200. - 1400.	832	7.89
1400. - 1600.	864	8.19
1600. - 1800.	880	8.34
1800. - 2000.	1617	15.33
2000. - 2200.	1122	10.64
2200. - 2400.	941	8.92
2400. - 2600.	643	6.10
2600. - 2800.	441	4.18
2800. - 3000.	392	3.72
3000. - 3200.	320	3.03
3200. - 3400.	42	.40
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-9

1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/14/72 RUN 4
RUN DURATION 19.78 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1898.6260	816.4352	8.1206	10108	3875.0000	25.0000	3850.0000
MV	2	13.5324	8.6395	.0859	10108	24.9750	.0000	24.9750
SPD	3	23.2481	14.6521	.1457	10108	56.4000	.0000	56.4000
TP	4	5.5203	1.0898	.0108	10108	8.4100	4.2800	4.1300

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	3995	39.52
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	455	18.01
3	542	21.45
4	1530	60.55
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
. - 1.	386	3.82
1. - 2.	613	6.06
2. - 3.	572	5.66
3. - 4.	694	6.87
4. - 5.	394	3.90
5. - 6.	364	3.60
6. - 7.	391	3.87
7. - 8.	346	3.42
8. - 9.	293	2.90
9. - 10.	162	1.60
10. - 11.	112	1.11
11. - 12.	237	2.34
12. - 13.	185	1.83
13. - 14.	252	2.49
14. - 15.	153	1.51
15. - 16.	105	1.04
16. - 17.	185	1.83
17. - 18.	103	1.02
18. - 19.	176	1.74
19. - 20.	843	8.34
20. - 21.	990	9.79
21. - 22.	185	1.83
22. - 23.	263	2.60
23. - 24.	777	7.69
24. - 25.	1327	13.13
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
. - 2.	1446	14.31
2. - 4.	80	.79
4. - 6.	68	.67
6. - 8.	85	.84
8. - 10.	169	1.67
10. - 12.	339	3.35
12. - 14.	401	3.97
14. - 16.	551	5.45
16. - 18.	499	4.94
18. - 20.	501	4.96
20. - 22.	701	6.94
22. - 24.	533	5.27
24. - 26.	474	4.69
26. - 28.	493	4.88
28. - 30.	629	6.22
30. - 32.	619	6.12
32. - 34.	414	4.10
34. - 36.	520	5.14
36. - 38.	252	2.49
38. - 40.	207	2.05
40. - 42.	35	.35
42. - 44.	46	.46
44. - 46.	26	.26
46. - 48.	49	.48
48. - 50.	102	1.01
50. - 52.	346	3.42
52. - 54.	376	3.72
54. - 56.	142	1.40
56. - 58.	5	.05
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
. - 200.	5	.05
200. - 400.	11	.11
400. - 600.	31	.31
600. - 800.	1643	16.25
800. - 1000.	179	1.77
1000. - 1200.	314	3.11
1200. - 1400.	684	6.77
1400. - 1600.	788	7.80
1600. - 1800.	674	6.67
1800. - 2000.	1139	11.27
2000. - 2200.	1001	9.90
2200. - 2400.	1205	11.92
2400. - 2600.	662	6.55
2600. - 2800.	328	3.24
2800. - 3000.	271	2.68
3000. - 3200.	198	1.96
3200. - 3400.	388	3.84
3400. - 3600.	559	5.53
3600. - 3800.	25	.25
3800. - 4000.	3	.03
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-51.

1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/14/72 RUN 5
RUN DURATION 21.43 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1700.1514	731.3333	7.5303	9432	3775.0000	50.0000	3725.0000
MV	2	13.4000	8.5204	.0877	9432	24.9750	.0000	24.9750
SPD	3	21.5089	14.4072	.1483	9432	55.3333	.0000	55.3333
TP	4	5.3566	.9789	.0101	9432	7.9300	4.2000	3.7300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	3848	40.80
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	545	23.11
3	339	14.38
4	1473	62.47
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	344	3.65
1. - 2.	618	6.55
2. - 3.	474	5.03
3. - 4.	695	7.37
4. - 5.	453	4.80
5. - 6.	405	4.29
6. - 7.	304	3.22
7. - 8.	232	2.46
8. - 9.	203	2.15
9. - 10.	169	1.79
10. - 11.	188	1.99
11. - 12.	252	2.67
12. - 13.	97	1.03
13. - 14.	100	1.06
14. - 15.	112	1.19
15. - 16.	105	1.11
16. - 17.	103	1.09
17. - 18.	170	1.80
18. - 19.	215	2.28
19. - 20.	857	9.09
20. - 21.	1198	12.70
21. - 22.	391	4.15
22. - 23.	269	2.85
23. - 24.	581	6.16
24. - 25.	897	9.51
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1538	16.31
2. - 4.	171	1.81
4. - 6.	171	1.81
6. - 8.	135	1.43
8. - 10.	205	2.17
10. - 12.	300	3.18
12. - 14.	535	5.67
14. - 16.	265	2.81
16. - 18.	334	3.54
18. - 20.	423	4.48
20. - 22.	647	6.86
22. - 24.	488	5.17
24. - 26.	559	5.93
26. - 28.	692	7.34
28. - 30.	526	5.58
30. - 32.	505	5.35
32. - 34.	351	3.72
34. - 36.	267	2.83
36. - 38.	127	1.35
38. - 40.	66	.70
40. - 42.	45	.48
42. - 44.	102	1.08
44. - 46.	236	2.50
46. - 48.	311	3.30
48. - 50.	145	1.54
50. - 52.	127	1.35
52. - 54.	121	1.28
54. - 56.	40	.42
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	6	.06
200. - 400.	11	.12
400. - 600.	23	.24
600. - 800.	1735	18.39
800. - 1000.	359	3.81
1000. - 1200.	251	2.66
1200. - 1400.	709	7.52
1400. - 1600.	967	10.25
1600. - 1800.	1217	12.90
1800. - 2000.	1215	12.88
2000. - 2200.	861	9.13
2200. - 2400.	637	6.75
2400. - 2600.	318	3.37
2600. - 2800.	178	1.89
2800. - 3000.	269	2.85
3000. - 3200.	382	4.05
3200. - 3400.	160	1.70
3400. - 3600.	133	1.41
3600. - 3800.	1	.01
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-52.
1970 DODGE 24000 LB GVW VAN 318 CID V8 TRUCK 11 06/14/72 RUN 6
RUN DURATION 22.09 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1685.3538	747.6642	7.0322	11304	3525.0000	10.0000	3515.0000
MV	2	13.8046	8.1971	.0771	11304	24.9750	.0000	24.9750
SPD	3	20.8638	14.4110	.1355	11304	54.0000	.0000	54.0000
TP	4	5.3337	.9632	.0091	11304	7.7900	4.2600	3.5300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4721	41.76
OUT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	650	23.00
3	496	17.55
4	1680	59.45
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	301	2.66
1. - 2.	848	7.50
2. - 3.	632	5.59
3. - 4.	482	4.26
4. - 5.	307	2.72
5. - 6.	302	2.67
6. - 7.	450	3.98
7. - 8.	388	3.43
8. - 9.	313	2.77
9. - 10.	278	2.46
10. - 11.	245	2.17
11. - 12.	222	1.96
12. - 13.	203	1.80
13. - 14.	202	1.79
14. - 15.	193	1.71
15. - 16.	267	2.36
16. - 17.	184	1.63
17. - 18.	351	3.11
18. - 19.	255	2.26
19. - 20.	1329	11.76
20. - 21.	1124	9.94
21. - 22.	291	2.57
22. - 23.	399	3.53
23. - 24.	629	5.56
24. - 25.	1109	9.81
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2095	18.53
2. - 4.	183	1.62
4. - 6.	168	1.49
6. - 8.	176	1.56
8. - 10.	232	2.05
10. - 12.	355	3.14
12. - 14.	631	5.58
14. - 16.	412	3.64
16. - 18.	556	4.92
18. - 20.	601	5.32
20. - 22.	406	3.59
22. - 24.	415	3.67
24. - 26.	608	5.38
26. - 28.	681	6.02
28. - 30.	765	6.77
30. - 32.	768	6.79
32. - 34.	438	3.87
34. - 36.	379	3.35
36. - 38.	186	1.65
38. - 40.	58	.51
40. - 42.	97	.86
42. - 44.	145	1.28
44. - 46.	208	1.84
46. - 48.	190	1.68
48. - 50.	138	1.22
50. - 52.	333	2.95
52. - 54.	79	.70
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	36	.32
200. - 400.	15	.13
400. - 600.	74	.65
600. - 800.	2370	20.97
800. - 1000.	401	3.55
1000. - 1200.	511	4.52
1200. - 1400.	543	4.80
1400. - 1600.	716	6.33
1600. - 1800.	1106	9.78
1800. - 2000.	1598	14.14
2000. - 2200.	1377	12.18
2200. - 2400.	908	8.03
2400. - 2600.	400	3.54
2600. - 2800.	313	2.77
2800. - 3000.	282	2.49
3000. - 3200.	252	2.23
3200. - 3400.	318	2.81
3400. - 3600.	84	.74
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 12

1972 IHC 22, 500 LB. GVW VAN
WITH 345 CID V-8 ENGINE

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TABLE F-5?.

1972 IHC C2500 LB GVW VAN 345 CID V8 TRUCK 12 06/22/72 RUN 1
RUN DURATION 20.1? MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1694.7764	869.8802	8.5865	10344	3825.0000	195.0000	3630.0000
MV	2	11.6776	9.2589	.0812	10344	22.6500	.0000	22.6500
SPD	3	20.4762	13.8874	.1366	10344	50.3333	.0000	50.3333
IP	4	8.6025	.6722	.0066	10344	9.6300	7.7400	1.8900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4	.04
OUT	3399	32.86

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	630	24.36
3	470	18.17
4	537	20.77
5	948	36.66
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	666	6.44
1. - 2.	1536	14.85
2. - 3.	837	8.09
3. - 4.	484	4.68
4. - 5.	383	3.70
5. - 6.	177	1.71
6. - 7.	98	.95
7. - 8.	118	1.14
8. - 9.	92	.89
9. - 10.	129	1.25
10. - 11.	137	1.32
11. - 12.	120	1.16
12. - 13.	99	.96
13. - 14.	121	1.17
14. - 15.	160	1.55
15. - 16.	185	1.79
16. - 17.	190	1.84
17. - 18.	2121	20.50
18. - 19.	229	2.21
19. - 20.	262	2.53
20. - 21.	407	3.93
21. - 22.	1185	11.46
22. - 23.	602	5.82
23. - 24.	0	.00
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	1728	16.71
2. - 4.	166	1.60
4. - 6.	138	1.33
6. - 8.	174	1.68
8. - 10.	232	2.24
10. - 12.	376	3.63
12. - 14.	488	4.72
14. - 16.	385	3.72
16. - 18.	388	3.75
18. - 20.	593	5.73
20. - 22.	445	4.30
22. - 24.	476	4.60
24. - 26.	484	4.68
26. - 28.	716	6.92
28. - 30.	824	7.97
30. - 32.	437	4.22
32. - 34.	498	4.81
34. - 36.	522	5.05
36. - 38.	181	1.75
38. - 40.	146	1.41
40. - 42.	228	2.20
42. - 44.	187	1.81
44. - 46.	215	2.08
46. - 48.	156	1.51
48. - 50.	150	1.45
50 - 52.	11	.11
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	1	.01
200. - 400.	9	.09
400. - 600.	41	.40
600. - 800.	1950	18.85
800. - 1000.	257	2.48
1000. - 1200.	410	3.96
1200. - 1400.	726	7.02
1400. - 1600.	958	9.26
1600. - 1800.	1186	11.47
1800. - 2000.	1488	14.39
2000. - 2200.	810	7.83
2200. - 2400.	932	9.01
2400. - 2600.	641	6.20
2600. - 2800.	467	4.51
2800. - 3000.	205	1.98
3000. - 3200.	137	1.32
3200. - 3400.	80	.77
3400. - 3600.	37	.36
3600. - 3800.	5	.05
3800. - 4000.	4	.04
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-54.

1972 IHC 22500 LB GVW VAN 345 CID V8 TRUCK 12 06/22/72 RUN 2
RUN DURATION 18.41 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1739.0190	631.8075	6.4932	9468	3250.0000	280.0000	2970.0000
MV	2	11.0594	5.5286	.0876	9468	23.5000	.0000	23.5000
SPD	3	23.1303	13.6526	.1403	9468	56.3333	.0000	56.3333
TP	4	8.6126	.6883	.0071	9468	9.8200	7.7500	2.0700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	3	.03
NOT	3362	35.51

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	456	19.26
3	466	19.69
4	377	15.93
5	1068	45.12
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
	<		
. - 1.		1390	14.68
1. - 2.		1134	11.98
2. - 3.		590	6.23
3. - 4.		441	4.66
4. - 5.		296	3.13
5. - 6.		162	1.71
6. - 7.		64	.68
7. - 8.		91	.96
8. - 9.		118	1.25
9. - 10.		175	1.85
10. - 11.		172	1.82
11. - 12.		157	1.66
12. - 13.		127	1.34
13. - 14.		102	1.08
14. - 15.		157	1.66
15. - 16.		169	1.78
16. - 17.		132	1.39
17. - 18.		1151	12.16
18. - 19.		247	2.61
19. - 20.		293	3.09
20. - 21.		575	6.07
21. - 22.		1426	15.06
22. - 23.		296	3.13
23. - 24.		3	.03
24. - 25.		0	.00
25. - 26.		0	.00
26. - 27.		0	.00
27. - 28.		0	.00
28. - 29.		0	.00
29. - 30.		0	.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
	<		
. - 2.		829	8.76
2. - 4.		199	2.10
4. - 6.		226	2.39
6. - 8.		231	2.44
8. - 10.		192	2.03
10. - 12.		278	2.94
12. - 14.		404	4.27
14. - 16.		600	6.34
16. - 18.		470	4.96
18. - 20.		499	5.27
20. - 22.		407	4.30
22. - 24.		571	6.03
24. - 26.		580	6.13
26. - 28.		569	6.01
28. - 30.		585	6.18
30. - 32.		600	6.34
32. - 34.		390	4.12
34. - 36.		489	5.16
36. - 38.		286	3.04
38. - 40.		31	.33
40. - 42.		59	.62
42. - 44.		86	.91
44. - 46.		118	1.25
46. - 48.		91	.96
48. - 50.		188	1.99
50. - 52.		309	3.26
52. - 54.		111	1.17
54. - 56.		67	.71
56. - 58.		1	.01
58. - 60.		0	.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
	<		
. - 200.		0	.00
200. - 400.		4	.04
400. - 600.		24	.25
600. - 800.		1174	12.40
800. - 1000.		370	3.91
1000. - 1200.		528	5.58
1200. - 1400.		665	7.02
1400. - 1600.		911	9.62
1600. - 1800.		1426	15.06
1800. - 2000.		1353	14.29
2000. - 2200.		766	8.09
2200. - 2400.		569	6.01
2400. - 2600.		512	5.41
2600. - 2800.		606	6.40
2800. - 3000.		511	5.40
3000. - 3200.		44	.46
3200. - 3400.		5	.05
3400. - 3600.		0	.00
3600. - 3800.		0	.00
3800. - 4000.		0	.00
4000. - 4200.		0	.00
4200. - 4400.		0	.00
4400. - 4600.		0	.00
4600. - 4800.		0	.00
4800. - 5000.		0	.00

TABLE F-55.
1972 IHC c2500 LP GVW VAN 345 CID V8 TRUCK 12 06/26/72 RUN 1
RUN DURATION MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1632.9229	690.c170	6.4793	11348	3495.0000	275.0000	3220.0000
MV	2	12.0243	7.9201	.0743	11348	22.6750	.0000	22.6750
SPD	3	14.1927	14.3541	.1347	11348	50.6000	.0000	50.6000
TP	4	8.5164	.6588	.0062	11348	9.7400	7.7800	1.9600

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	1	.01
NOT	3041	26.80

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	893	31.46
3	384	13.54
4	513	18.08
5	1046	36.87
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	1165	10.27
1. - 2.	1143	10.07
2. - 3.	629	5.54
3. - 4.	402	3.54
4. - 5.	352	3.10
5. - 6.	221	1.95
6. - 7.	122	1.08
7. - 8.	107	.94
8. - 9.	145	1.28
9. - 10.	234	2.06
10. - 11.	175	1.54
11. - 12.	160	1.41
12. - 13.	175	1.54
13. - 14.	167	1.47
14. - 15.	140	1.23
15. - 16.	185	1.63
16. - 17.	519	4.57
17. - 18.	2586	22.79
18. - 19.	269	2.37
19. - 20.	296	2.61
20. - 21.	513	4.52
21. - 22.	1299	11.45
22. - 23.	344	3.03
23. - 24.	0	.00
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
< . - 2.	2462	21.70
2. - 4.	254	2.24
4. - 6.	188	1.66
6. - 8.	300	2.64
8. - 10.	333	2.93
10. - 12.	340	3.00
12. - 14.	378	3.33
14. - 16.	456	4.02
16. - 18.	479	4.22
18. - 20.	467	4.12
20. - 22.	514	4.53
22. - 24.	570	5.02
24. - 26.	529	4.66
26. - 28.	685	6.04
28. - 30.	796	7.01
30. - 32.	538	4.74
32. - 34.	372	3.28
34. - 36.	408	3.60
36. - 38.	103	.91
38. - 40.	30	.26
40. - 42.	161	1.42
42. - 44.	214	1.89
44. - 46.	342	3.01
46. - 48.	305	2.69
48. - 50.	102	.90
50. - 52.	22	.19
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	5	.04
400. - 600.	27	.24
600. - 800.	2810	24.76
800. - 1000.	307	2.71
1000. - 1200.	370	3.26
1200. - 1400.	624	5.50
1400. - 1600.	878	7.74
1600. - 1800.	1541	13.58
1800. - 2000.	1277	11.25
2000. - 2200.	904	7.97
2200. - 2400.	562	4.95
2400. - 2600.	831	7.32
2600. - 2800.	823	7.25
2800. - 3000.	311	2.74
3000. - 3200.	55	.48
3200. - 3400.	20	.18
3400. - 3600.	3	.03
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-56.

1972 IHC 22500 LB GVW VAN 345 CID V8 TRUCK 12 06/27/72 RUN 1
RUN DURATION 19.27 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1702.1467	653.4119	6.6045	9788	3505.0000	305.0000	3200.0000
MV	2	11.8260	8.3389	.0843	9788	22.7750	.0000	22.7750
SPD	3	21.7933	13.5976	.1374	9788	49.5333	.0000	49.5333
TP	4	8.5128	.6668	.0067	9788	9.8500	7.7700	2.0800

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	13	.13
WOT	2761	28.21

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	520	21.25
3	326	13.32
4	514	21.01
5	1045	42.71
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	1764	18.02
1. - 2.	721	7.37
2. - 3.	335	3.42
3. - 4.	259	2.65
4. - 5.	292	2.98
5. - 6.	185	1.89
6. - 7.	97	.99
7. - 8.	84	.86
8. - 9.	144	1.47
9. - 10.	148	1.51
10. - 11.	130	1.33
11. - 12.	117	1.20
12. - 13.	129	1.32
13. - 14.	175	1.79
14. - 15.	197	2.01
15. - 16.	234	2.39
16. - 17.	591	6.04
17. - 18.	1386	14.16
18. - 19.	271	2.77
19. - 20.	284	2.90
20. - 21.	427	4.36
21. - 22.	1408	14.38
22. - 23.	410	4.19
23. - 24.	0	.00
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1487	15.19
2. - 4.	174	1.78
4. - 6.	126	1.29
6. - 8.	176	1.80
8. - 10.	245	2.50
10. - 12.	290	2.96
12. - 14.	326	3.33
14. - 16.	432	4.41
16. - 18.	584	5.97
18. - 20.	381	3.89
20. - 22.	368	3.76
22. - 24.	334	3.41
24. - 26.	500	5.11
26. - 28.	667	6.81
28. - 30.	631	6.45
30. - 32.	649	6.63
32. - 34.	582	5.95
34. - 36.	486	4.97
36. - 38.	170	1.74
38. - 40.	145	1.48
40. - 42.	344	3.51
42. - 44.	286	2.92
44. - 46.	215	2.20
46. - 48.	113	1.15
48. - 50.	77	.79
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	3	.03
400. - 600.	108	1.10
600. - 800.	1651	16.87
800. - 1000.	366	3.74
1000. - 1200.	307	3.14
1200. - 1400.	605	6.18
1400. - 1600.	803	8.20
1600. - 1800.	1163	11.88
1800. - 2000.	1512	15.45
2000. - 2200.	949	9.70
2200. - 2400.	766	7.83
2400. - 2600.	720	7.36
2600. - 2800.	469	4.79
2800. - 3000.	242	2.47
3000. - 3200.	103	1.05
3200. - 3400.	18	.18
3400. - 3600.	3	.03
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-57.

1972 IHC 22500 LB GVW VAN 345 CID V8 TRUCK 12 06/27/72 RUN 2
RUN DURATION 19.03 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1796.0940	718.6160	7.2755	9756	3880.0000	210.0000	3670.0000
MV	2	10.6549	8.6724	.0878	9756	22.8000	.0000	22.8000
SPD	3	22.2132	14.1555	.1433	9756	54.0667	.0000	54.0667
TP	4	8.6850	.7213	.0073	9756	9.7900	7.6100	2.1800

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5	.05
WOT	3868	39.65

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	585	23.99
3	401	16.44
4	380	15.58
5	1071	43.91
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	1709	17.52
1. - 2.	1510	15.48
2. - 3.	491	5.03
3. - 4.	288	2.95
4. - 5.	264	2.71
5. - 6.	158	1.62
6. - 7.	74	.76
7. - 8.	58	.59
8. - 9.	74	.76
9. - 10.	102	1.05
10. - 11.	71	.73
11. - 12.	105	1.08
12. - 13.	119	1.22
13. - 14.	106	1.09
14. - 15.	115	1.18
15. - 16.	161	1.65
16. - 17.	277	2.84
17. - 18.	1541	15.80
18. - 19.	182	1.87
19. - 20.	272	2.79
20. - 21.	442	4.53
21. - 22.	910	9.33
22. - 23.	727	7.45
23. - 24.	0	.00
24. - 25.	0	.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1484	15.21
2. - 4.	155	1.59
4. - 6.	123	1.26
6. - 8.	157	1.61
8. - 10.	162	1.66
10. - 12.	216	2.21
12. - 14.	337	3.45
14. - 16.	448	4.59
16. - 18.	600	6.15
18. - 20.	553	5.67
20. - 22.	621	6.37
22. - 24.	482	4.94
24. - 26.	453	4.64
26. - 28.	360	3.69
28. - 30.	361	3.70
30. - 32.	413	4.23
32. - 34.	685	7.02
34. - 36.	732	7.50
36. - 38.	369	3.78
38. - 40.	158	1.62
40. - 42.	58	.59
42. - 44.	49	.50
44. - 46.	87	.89
46. - 48.	215	2.20
48. - 50.	278	2.85
50. - 52.	148	1.52
52. - 54.	51	.52
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	8	.08
400. - 600.	23	.24
600. - 800.	1605	16.45
800. - 1000.	313	3.21
1000. - 1200.	438	4.49
1200. - 1400.	747	7.66
1400. - 1600.	565	5.79
1600. - 1800.	641	6.57
1800. - 2000.	1479	15.16
2000. - 2200.	1137	11.65
2200. - 2400.	597	6.12
2400. - 2600.	499	5.11
2600. - 2800.	726	7.44
2800. - 3000.	678	6.95
3000. - 3200.	214	2.19
3200. - 3400.	62	.64
3400. - 3600.	18	.18
3600. - 3800.	2	.02
3800. - 4000.	4	.04
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-58.

1972 IHC 22500 LB GVW VAN 345 CID V8 TRUCK 12 06/27/72 RUN 3
RUN DURATION 20.87 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1622.0220	721.3392	6.9168	10876	3600.0000	325.0000	3275.0000
MV	2	12.0528	8.1757	.0784	10876	22.7500	.0250	22.7250
SPD	3	19.9557	14.2452	.1366	10876	54.3333	.0000	54.3333
TP	4	8.5241	.6878	.0066	10876	9.9100	.0500	9.8600

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	11	.10
WOT	3197	29.39

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	723	26.59
3	310	11.40
4	560	20.60
5	1093	40.20
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
. -	1.	1321	12.15
1. -	2.	1103	10.14
2. -	3.	600	5.52
3. -	4.	404	3.71
4. -	5.	293	2.69
5. -	6.	158	1.45
6. -	7.	55	.51
7. -	8.	82	.75
8. -	9.	168	1.54
9. -	10.	139	1.28
10. -	11.	144	1.32
11. -	12.	163	1.50
12. -	13.	166	1.53
13. -	14.	155	1.43
14. -	15.	176	1.62
15. -	16.	286	2.63
16. -	17.	914	8.40
17. -	18.	1437	13.21
18. -	19.	262	2.41
19. -	20.	400	3.68
20. -	21.	575	5.29
21. -	22.	1411	12.97
22. -	23.	464	4.27
23. -	24.	0	.00
24. -	25.	0	.00
25. -	26.	0	.00
26. -	27.	0	.00
27. -	28.	0	.00
28. -	29.	0	.00
29. -	30.	0	.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
. -	2.	1962	18.04
2. -	4.	245	2.25
4. -	6.	194	1.78
6. -	8.	251	2.31
8. -	10.	275	2.53
10. -	12.	326	3.00
12. -	14.	405	3.72
14. -	16.	438	4.03
16. -	18.	482	4.43
18. -	20.	511	4.70
20. -	22.	690	6.34
22. -	24.	751	6.91
24. -	26.	1015	9.33
26. -	28.	794	7.30
28. -	30.	532	4.89
30. -	32.	262	2.41
32. -	34.	242	2.23
34. -	36.	340	3.13
36. -	38.	62	.57
38. -	40.	44	.40
40. -	42.	20	.18
42. -	44.	48	.44
44. -	46.	108	.99
46. -	48.	200	1.84
48. -	50.	273	2.51
50. -	52.	218	2.00
52. -	54.	185	1.70
54. -	56.	3	.03
56. -	58.	0	.00
58. -	60.	0	.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
. -	200.	0	.00
200. -	400.	9	.08
400. -	600.	175	1.61
600. -	800.	2211	20.33
800. -	1000.	385	3.54
1000. -	1200.	610	5.61
1200. -	1400.	713	6.56
1400. -	1600.	1468	13.50
1600. -	1800.	1354	12.45
1800. -	2000.	695	6.39
2000. -	2200.	833	7.66
2200. -	2400.	466	4.28
2400. -	2600.	495	4.55
2600. -	2800.	561	5.16
2800. -	3000.	572	5.26
3000. -	3200.	273	2.51
3200. -	3400.	45	.41
3400. -	3600.	10	.09
3600. -	3800.	1	.01
3800. -	4000.	0	.00
4000. -	4200.	0	.00
4200. -	4400.	0	.00
4400. -	4600.	0	.00
4600. -	4800.	0	.00
4800. -	5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 13

1972 IHC 17,000-LB GVW VAN
WITH 304 CID V-8 ENGINE

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TABLE F-59.

1970 IHC 17000 LB GVW VAN 404 CID VA TRUCK 13 07/12/72 RUN 1

RUN DURATION [illegible] MIN [illegible] SPEED 500 RPM EDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1427.1567	614.4578	5.9017	10840	2935.0000	35.0000	2900.0000
MV	2	13.2761	7.0816	.0680	10840	24.4250	.2750	24.1500
SPE	3	17.6047	12.5027	.1201	10840	48.2667	.0000	48.2667
TP	4	9.4312	.8789	.0084	10840	9.6600	6.0300	3.6300

PERCENT OF TIME THROTTLE POSITION AT

	COUNT	PERCENT
CLOSED	0	.00
NOT	357	3.29

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	654	24.13
3	394	14.54
4	1662	61.33
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	290	2.68
1. - 2.	47[illegible]	[illegible].23
2. - 3.	409	3.77
3. - 4.	[illegible]	3.10
4. - 5.	302	2.80
5. - 6.	329	3.04
6. - 7.	[illegible]	[illegible]
7. - 8.	326	3.01
8. - 9.	[illegible]	[illegible]
9. - 10.	329	3.04
10. - 11.	347	3.20
11. - 12.	341	3.15
12. - 13.	[illegible]	[illegible]
13. - 14.	354	3.27
14. - 15.	[illegible]	[illegible]
15. - 16.	251	2.32
16. - 17.	670	6.18
17. - 18.	2051	18.92
18. - 19.	344	3.17
19. - 20.	256	2.36
20. - 21.	[illegible]	[illegible]
21. - 22.	324	2.99
22. - 23.	475	4.38
23. - 24.	788	7.27
24. - 25.	149	1.37
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0. - 2.	2035	18.77
2. - 4.	263	2.43
4. - 6.	231	2.13
6. - 8.	244	2.25
8. - 10.	343	3.16
10. - 12.	393	3.63
12. - 14.	586	5.41
14. - 16.	529	4.88
16. - 18.	619	5.71
18. - 20.	830	7.66
20. - 22.	872	8.04
22. - 24.	661	6.10
24. - 26.	745	6.87
26. - 28.	723	6.67
28. - 30.	328	3.03
30. - 32.	171	1.58
32. - 34.	87	.80
34. - 36.	127	1.17
36. - 38.	185	1.71
38. - 40.	135	1.25
40. - 42.	132	1.22
42. - 44.	308	2.84
44. - 46.	191	1.76
46. - 48.	101	.93
48. - 50.	1	.01
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	6	.06
200. - 400.	6	.06
400. - 600.	1170	10.79
600. - 800.	1307	12.06
800. - 1000.	274	2.53
1000. - 1200.	739	6.82
1200. - 1400.	1714	15.81
1400. - 1600.	1546	14.26
1600. - 1800.	1599	14.78
1800. - 2000.	809	7.46
2000. - 2200.	229	2.11
2200. - 2400.	385	3.55
2400. - 2600.	503	4.64
2600. - 2800.	515	4.75
2800. - 3000.	38	.35
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-60.

1976 INC [illegible] LM [illegible] VP TRUCK 13 07/12/72 RUN 2

RUN DURATION 23.05 MIN IDLE SPEED 500 RPM IDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
[illegible]	1	1414.[illegible]	676.[illegible]	6.2587	11628	2955.0000	.0000	2955.0000
MV	2	12.3988	8.1733	.0758	11628	24.9750	.0000	24.9750
[illegible]	3	17.7[illegible]02	13.[illegible]	.125[illegible]	11628	51.2000	.0000	51.2000
TP	4	7.1833	.9993	.0093	11628	9.5700	4.1100	5.4600

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	79	.68

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1	.03
2	797	27.42
3	513	17.65
4	1596	54.90
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL <	COUNT	PERCENT
. - 1.	292	2.51
1. - 2.	1044	8.98
2. - 3.	1103	9.49
3. - 4.	820	7.05
4. - 5.	451	3.88
5. - 6.	372	3.20
6 - 7.	232	2.00
7. - 8.	233	2.00
8. - 9.	239	2.06
9. - 10.	169	1.45
10. - 11.	146	1.26
11. - 12.	158	1.36
12. - 13.	165	1.42
13. - 14.	145	1.25
14. - 15.	141	1.21
15. - 16.	261	2.24
16. - 17.	1028	8.84
17. - 18.	1721	14.80
18. - 19.	153	1.32
19. - 20.	211	1.81
20. - 21.	228	1.96
21. - 22.	283	2.43
22. - 23.	493	4.24
23. - 24.	925	7.95
24. - 25.	615	5.29
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME WS AT

LEVEL <	COUNT	PERCENT
. - 2.	2496	21.47
2. - 4.	406	3.49
4. - 6.	300	2.58
6. - 8.	260	2.24
8. - 10.	277	2.38
10. - 12.	348	2.99
12. - 14.	589	5.07
14. - 16.	561	4.82
16. - 18.	498	4.28
18. - 20.	559	4.81
20. - 22.	621	5.34
22. - 24.	624	5.37
24. - 26.	693	5.96
26. - 28.	645	5.55
28. - 30.	664	5.71
30. - 32.	585	5.03
32. - 34.	276	2.37
34. - 36.	128	1.10
36. - 38.	85	.73
38. - 40.	136	1.17
40. - 42.	122	1.05
42. - 44.	221	1.90
44. - 46.	315	2.71
46. - 48.	134	1.15
48. - 50.	65	.56
50. - 52.	20	.17
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	25	.21
200. - 400.	45	.39
400. - 600.	2218	19.07
600. - 800.	909	7.82
800. - 1000.	502	4.32
1000. - 1200.	652	5.61
1200. - 1400.	1041	8.95
1400. - 1600.	1502	12.92
1600. - 1800.	1508	12.97
1800. - 2000.	1109	9.54
2000. - 2200.	562	4.83
2200. - 2400.	364	3.13
2400. - 2600.	424	3.65
2600. - 2800.	614	5.28
2800. - 3000.	153	1.32
3000. - 3200.	0	.00
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-61.

1970 IHC 17000 LB GVW VAN 304 CID VA TRUCK 13 07/12/72 RUN 3

RUN DURATION 28.63 MIN IDLE SPEED 500 RPM IDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1548.7166	644.6946	6.2547	10624	3305.0000	225.0000	3080.0000
MV	2	12.9817	7.6343	.0741	10624	24.7750	.2000	24.5750
SPD	3	20.3988	13.1674	.1277	10624	44.9333	.0000	44.9333
VB	4	7.1399	.4976	.0087	10624	9.5100	5.7200	3.7900

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	71	.67

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	70	2.64
2	549	20.67
3	434	16.34
4	1600	60.24
5	3	.11
6	0	.00
7	0	.00

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
0. - 1.	188	1.75
1. - 2.	789	7.43
2. - 3.	612	5.76
3. - 4.	375	3.53
4. - 5.	389	3.66
5. - 6.	455	4.28
6. - 7.	432	4.07
7. - 8.	348	3.28
8. - 9.	269	2.53
9. - 10.	274	2.58
10. - 11.	314	2.96
11. - 12.	211	1.99
12. - 13.	231	2.17
13. - 14.	210	1.98
14. - 15.	203	1.91
15. - 16.	528	4.97
16. - 17.	1077	10.14
17. - 18.	810	7.62
18. - 19.	291	2.74
19. - 20.	254	2.39
20. - 21.	236	2.22
21. - 22.	269	2.53
22. - 23.	462	4.35
23. - 24.	849	7.99
24. - 25.	558	5.18
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
0. - 2.	1668	15.70
2. - 4.	253	2.38
4. - 6.	227	2.14
6. - 8.	199	1.87
8. - 10.	233	2.19
10. - 12.	331	3.12
12. - 14.	385	3.62
14. - 16.	345	3.25
16. - 18.	459	4.32
18. - 20.	545	5.13
20. - 22.	569	5.36
22. - 24.	873	8.22
24. - 26.	755	7.11
26. - 28.	746	7.02
28. - 30.	939	8.84
30. - 32.	633	5.96
32. - 34.	233	2.19
34. - 36.	53	.50
36. - 38.	33	.31
38. - 40.	78	.73
40. - 42.	159	1.50
42. - 44.	325	3.06
44. - 46.	254	2.39
46. - 48.	301	2.83
48. - 50.	28	.26
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	7	.07
400. - 600.	1561	14.69
600. - 800.	432	4.07
800. - 1000.	237	2.23
1000. - 1200.	512	4.82
1200. - 1400.	1197	11.27
1400. - 1600.	1647	15.50
1600. - 1800.	1666	15.68
1800. - 2000.	1188	11.18
2000. - 2200.	466	4.39
2200. - 2400.	375	3.53
2400. - 2600.	512	4.82
2600. - 2800.	585	5.51
2800. - 3000.	183	1.72
3000. - 3200.	52	.49
3200. - 3400.	4	.04
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-62.

1976 IHC 17000 LB GVW VAN 304 CID V8 TRUCK 13 07/13/72 RUN 1
RUN DURATION 19.95 MIN IDLE SPEED 500 RPM IDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1506.8774	634.1987	6.3080	10108	3145.0000	15.0000	3130.0000
MV	2	12.5432	7.9756	.0793	10108	24.9000	.0000	24.9000
SPD	3	20.9582	13.3145	.1325	10108	50.2000	.0000	50.2000
TP	4	7.2581	1.0312	.0103	10108	9.4900	5.6200	3.8700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	254	2.51

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	564	22.32
3	515	20.38
4	1447	57.26
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	347	3.43
1. - 2.	927	9.17
2. - 3.	538	5.32
3. - 4.	565	5.59
4. - 5.	513	5.08
5. - 6.	258	2.55
6. - 7.	267	2.64
7. - 8.	350	3.46
8. - 9.	191	1.89
9. - 10.	174	1.72
10. - 11.	209	2.07
11. - 12.	265	2.62
12. - 13.	196	1.92
13. - 14.	212	2.10
14. - 15.	178	1.76
15. - 16.	278	2.75
16. - 17.	643	6.36
17. - 18.	1393	13.78
18. - 19.	187	1.85
19. - 20.	224	2.22
20. - 21.	208	2.06
21. - 22.	243	2.40
22. - 23.	335	3.31
23. - 24.	1656	16.39
24. - 25.	359	3.55
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1649	16.31
2. - 4.	157	1.55
4. - 6.	147	1.45
6. - 8.	138	1.37
8. - 10.	193	1.91
10. - 12.	328	3.24
12. - 14.	403	3.99
14. - 16.	567	5.61
16. - 18.	515	5.09
18. - 20.	430	4.25
20. - 22.	389	3.85
22. - 24.	397	3.93
24. - 26.	631	6.24
26. - 28.	769	7.61
28. - 30.	693	6.86
30. - 32.	669	6.62
32. - 34.	561	5.55
34. - 36.	331	3.27
36. - 38.	198	1.96
38. - 40.	146	1.42
40. - 42.	78	.77
42. - 44.	207	2.05
44. - 46.	285	2.82
46. - 48.	161	1.59
48. - 50.	67	.66
50. - 52.	1	.01
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	6	.06
200. - 400.	98	.97
400. - 600.	1730	17.12
600. - 800.	204	2.02
800. - 1000.	270	2.67
1000. - 1200.	449	4.44
1200. - 1400.	910	9.00
1400. - 1600.	1588	15.71
1600. - 1800.	1597	15.80
1800. - 2000.	1184	11.71
2000. - 2200.	651	6.44
2200. - 2400.	390	3.86
2400. - 2600.	702	6.94
2600. - 2800.	256	2.53
2800. - 3000.	62	.61
3000. - 3200.	11	.11
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-63.

1970 IHC 17000 LB GVW VAN 304 D VA TRUCK 13 07/13/72 RUN 2

RUN DURATION 19.89 MIN IDLE SPEED 500 RPM IDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1457.9890	620.0034	6.1365	10208	3175.0000	95.0000	3080.0000
MV	2	12.7073	7.9368	.0786	10208	24.7750	.0000	24.7750
SPD	3	20.9212	12.2334	.1211	10208	47.3333	.0000	47.3333
TP	4	7.2502	1.0309	.0102	10208	9.5900	5.8400	3.7500

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	0	.00
NOT	451	4.42

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	2	.08
2	594	23.28
3	435	17.05
4	1521	59.60
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
	<		
0. - 1.		493	4.83
1. - 2.		868	8.50
2. - 3.		489	4.78
3. - 4.		293	2.93
4. - 5.		838	5.28
5. - 6.		248	2.43
6. - 7.		282	2.78
7. - 8.		196	1.92
8. - 9.		348	3.41
9. - 10.		265	2.60
10. - 11.		272	2.66
11. - 12.		275	2.69
12. - 13.		270	2.64
13. - 14.		303	2.97
14. - 15.		217	2.13
15. - 16.		301	2.95
16. - 17.		692	6.78
17. - 18.		1058	10.36
18. - 19.		225	2.20
19. - 20.		213	2.09
20. - 21.		178	1.74
21. - 22.		258	2.53
22. - 23.		501	4.91
23. - 24.		1042	10.21
24. - 25.		377	3.69
25. - 26.		0	.00
26. - 27.		0	.00
27. - 28.		0	.00
28. - 29.		0	.00
29. - 30.		0	.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
	<		
0. - 2.		1325	12.98
2. - 4.		216	2.12
4. - 6.		172	1.68
6. - 8.		191	1.87
8. - 10.		235	2.30
10. - 12.		296	2.90
12. - 14.		339	3.32
14. - 16.		500	4.90
16. - 18.		581	5.69
18. - 20.		521	5.10
20. - 22.		501	4.91
22. - 24.		668	6.54
24. - 26.		794	7.78
26. - 28.		689	6.75
28. - 30.		796	7.80
30. - 32.		527	5.16
32. - 34.		539	5.28
34. - 36.		291	2.85
36. - 38.		161	1.58
38. - 40.		266	2.61
40. - 42.		282	2.76
42. - 44.		155	1.52
44. - 46.		127	1.24
46. - 48.		36	.35
48. - 50.		0	.00
50. - 52.		0	.00
52. - 54.		0	.00
54. - 56.		0	.00
56. - 58.		0	.00
58. - 60.		0	.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
	<		
0. - 200.		2	.02
200. - 400.		34	.33
400. - 600.		1515	14.84
600. - 800.		216	2.12
800. - 1000.		337	3.30
1000. - 1200.		508	4.98
1200. - 1400.		963	9.43
1400. - 1600.		1408	13.79
1600. - 1800.		1401	13.72
1800. - 2000.		1396	13.68
2000. - 2200.		807	7.91
2200. - 2400.		810	7.93
2400. - 2600.		490	4.80
2600. - 2800.		164	1.61
2800. - 3000.		100	.98
3000. - 3200.		57	.56
3200. - 3400.		0	.00
3400. - 3600.		0	.00
3600. - 3800.		0	.00
3800. - 4000.		0	.00
4000. - 4200.		0	.00
4200. - 4400.		0	.00
4400. - 4600.		0	.00
4600. - 4800.		0	.00
4800. - 5000.		0	.00

TABLE F-64.

1970 IHC 17000 LB GVW VAN 304 CID V8 TRUCK 13 07/14/72 RUN 1
RUN DURATION 20.97 MIN IDLE SPEED 500 RPM IDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1359.2585	540.3060	5.2380	10640	3105.0000	385.0000	2720.0000
MV	2	12.7929	7.4133	.0719	10640	25.0250	.5250	24.5000
SPD	3	14.9140	12.4285	.1206	10640	66.7333	.0000	66.7333
TP	4	7.0715	.9480	.0092	10540	9.4600	1.6100	7.8500

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
WOT	291	2.73

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	613	23.05
3	427	16.05
4	1610	60.53
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	417	3.92
1. - 2.	763	7.17
2. - 3.	593	5.28
3. - 4.	326	3.06
4. - 5.	370	3.48
5. - 6.	352	3.31
6. - 7.	285	2.69
7. - 8.	324	3.05
8. - 9.	282	2.65
9. - 10.	299	2.81
10. - 11.	276	2.59
11. - 12.	278	2.61
12. - 13.	261	2.45
13. - 14.	301	2.83
14. - 15.	299	2.81
15. - 16.	362	3.40
16. - 17.	899	8.45
17. - 18.	1570	14.76
18. - 19.	258	2.42
19. - 20.	186	1.75
20. - 21.	245	2.30
21. - 22.	323	3.04
22. - 23.	417	3.92
23. - 24.	744	7.93
24. - 25.	171	1.61
25. - 26.	1	.01
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1551	14.58
2. - 4.	255	2.40
4. - 6.	191	1.80
6. - 8.	183	1.72
8. - 10.	247	2.32
10. - 12.	426	4.00
12. - 14.	483	4.54
14. - 16.	395	3.71
16. - 18.	488	4.59
18. - 20.	393	3.69
20. - 22.	719	6.76
22. - 24.	959	9.01
24. - 26.	1066	10.02
26. - 28.	982	9.23
28. - 30.	564	5.30
30. - 32.	309	2.90
32. - 34.	117	1.10
34. - 36.	67	.63
36. - 38.	155	1.46
38. - 40.	215	2.02
40. - 42.	375	3.52
42. - 44.	335	3.15
44. - 46.	142	1.33
46. - 48.	5	.05
48. - 50.	3	.03
50. - 52.	3	.03
52. - 54.	3	.03
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	1	.01
400. - 600.	1995	18.75
600. - 800.	195	1.83
800. - 1000.	262	2.46
1000. - 1200.	837	7.87
1200. - 1400.	1965	18.47
1400. - 1600.	2330	21.90
1600. - 1800.	1201	11.29
1800. - 2000.	398	3.74
2000. - 2200.	409	3.84
2200. - 2400.	819	7.70
2400. - 2600.	218	2.05
2600. - 2800.	2	.02
2800. - 3000.	6	.06
3000. - 3200.	2	.02
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-65.

1970 IHC 17000 LB GVW VAN 304 CID V8 TRUCK 13 07/14/72 RUN 2

RUN DURATION 22.43 MIN IDLE SPEED 500 RPM IDLE VAC 17.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1536.4274	662.4883	6.1695	11544	5181.0000	320.0000	4861.0000
MV	2	13.6765	7.7846	.0725	11544	24.9750	.0000	24.9750
SPD	3	18.3252	13.0374	.1213	11544	49.0667	.0000	49.0667
TP	4	7.1489	.9702	.0090	11544	9.5500	5.8200	3.7300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	0	.00
NOT	169	1.46

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	960	33.26
3	618	21.41
4	1306	45.25
5	0	.00
6	0	.00
7	2	.07

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	336	2.91
1. - 2.	566	4.90
2. - 3.	698	6.05
3. - 4.	564	4.93
4. - 5.	368	3.19
5. - 6.	316	2.74
6. - 7.	378	3.28
7. - 8.	333	2.88
8. - 9.	239	2.07
9. - 10.	223	1.93
10. - 11.	300	2.60
11. - 12.	284	2.46
12. - 13.	300	2.60
13. - 14.	186	1.61
14. - 15.	133	1.15
15. - 16.	254	2.20
16. - 17.	818	7.09
17. - 18.	1791	15.51
18. - 19.	260	2.25
19. - 20.	331	2.87
20. - 21.	260	2.25
21. - 22.	294	2.55
22. - 23.	434	3.76
23. - 24.	1049	9.09
24. - 25.	826	7.16
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	2269	19.66
2. - 4.	284	2.46
4. - 6.	249	2.16
6. - 8.	309	2.68
8. - 10.	351	3.04
10. - 12.	438	3.79
12. - 14.	506	4.38
14. - 16.	564	4.89
16. - 18.	657	5.69
18. - 20.	461	3.99
20. - 22.	514	4.45
22. - 24.	498	4.31
24. - 26.	538	4.66
26. - 28.	777	6.73
28. - 30.	913	7.91
30. - 32.	581	5.03
32. - 34.	306	2.65
34. - 36.	229	1.98
36. - 38.	285	2.47
38. - 40.	272	2.36
40. - 42.	152	1.32
42. - 44.	126	1.09
44. - 46.	181	1.57
46. - 48.	66	.57
48. - 50.	18	.16
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	2309	20.00
600. - 800.	258	2.23
800. - 1000.	262	2.27
1000. - 1200.	341	2.95
1200. - 1400.	784	6.79
1400. - 1600.	1502	13.01
1600. - 1800.	1954	16.93
1800. - 2000.	1094	9.48
2000. - 2200.	1237	10.72
2200. - 2400.	686	5.94
2400. - 2600.	683	5.92
2600. - 2800.	250	2.17
2800. - 3000.	113	.98
3000. - 3200.	70	.61
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 14

1972 IHC 24, 500 LB. GVW VAN
WITH 345 CID V-8 ENGINE

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TABLE F-66.

1972 IHC 24500 LB GVW VAN 345 CID V8 TRUCK 14 07/19/72 RUN 1
RUN DURATION 22.46 MIN IDLE SPEED RPM IDLE VAC INCHE HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1584.6387	621.0552	5.7773	11556	3070.0000	345.0000	2725.0000
MV	2	13.0379	8.0374	.0748	11556	24.4000	.2500	24.1500
SPD	3	18.7564	13.1748	.1226	11556	54.6000	.0000	54.6000
TP	4	1.0434	.9624	.0090	11556	8.0400	.0100	8.0300

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	1188	10.28
OUT	321	2.78

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	770	26.65
3	405	14.02
4	551	19.07
5	1160	40.15
6	0	.00
7	3	.10

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	1035	8.96
1. - 2.	704	6.09
2. - 3.	583	5.04
3. - 4.	486	4.21
4. - 5.	374	3.24
5. - 6.	172	1.49
6. - 7.	171	1.48
7. - 8.	261	2.26
8. - 9.	240	2.08
9. - 10.	245	2.12
10. - 11.	230	1.99
11. - 12.	234	2.02
12. - 13.	217	1.88
13. - 14.	313	2.71
14. - 15.	235	2.03
15. - 16.	214	1.85
16. - 17.	237	2.05
17. - 18.	413	3.57
18. - 19.	2416	20.91
19. - 20.	248	2.15
20. - 21.	334	2.89
21. - 22.	438	3.79
22. - 23.	881	7.62
23. - 24.	842	7.29
24. - 25.	33	.29
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	1795	15.53
2. - 4.	303	2.62
4. - 6.	334	2.89
6. - 8.	372	3.22
8. - 10.	426	3.69
10. - 12.	509	4.40
12. - 14.	581	5.03
14. - 16.	548	4.74
16. - 18.	516	4.47
18. - 20.	621	5.37
20. - 22.	793	6.86
22. - 24.	754	6.52
24. - 26.	741	6.41
26. - 28.	813	7.04
28. - 30.	640	5.54
30. - 32.	481	4.16
32. - 34.	217	1.88
34. - 36.	61	.53
36. - 38.	45	.39
38. - 40.	46	.40
40. - 42.	59	.51
42. - 44.	83	.72
44. - 46.	136	1.18
46. - 48.	299	2.59
48. - 50.	319	2.76
50. - 52.	63	.55
52. - 54.	0	.00
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	2	.02
400. - 600.	8	.07
600. - 800.	2175	18.82
800. - 1000.	595	5.15
1000. - 1200.	513	4.44
1200. - 1400.	967	8.37
1400. - 1600.	1519	13.14
1600. - 1800.	1659	14.36
1800. - 2000.	1684	14.57
2000. - 2200.	708	6.13
2200. - 2400.	370	3.20
2400. - 2600.	231	2.00
2600. - 2800.	485	4.20
2800. - 3000.	630	5.45
3000. - 3200.	10	.09
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-67.

1972 IHC 24500 LB GVW VAN 345 CID V8 TRUCK 14 07/19/72 RUN 2

RUN DURATION 20.60 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1913.8252	715.0004	6.9539	10572	3710.0000	425.0000	3285.0000
MV	2	12.9691	8.4691	.0824	10572	24.5000	.0500	24.4500
SPD	3	20.0644	13.1469	.1279	10572	49.6000	.0000	49.6000
TP	4	1.1651	.9963	.0097	10572	3.5600	.0700	3.4900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	1202	11.37
NOT	275	2.60

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	1	.01
2	736	27.85
3	578	21.87
4	520	19.67
5	806	30.50
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	432	4.09
1. - 2.	1053	9.96
2. - 3.	779	7.37
3. - 4.	740	7.00
4. - 5.	332	3.14
5. - 6.	142	1.34
6. - 7.	205	1.94
7. - 8.	214	2.02
8. - 9.	174	1.65
9. - 10.	153	1.45
10. - 11.	220	2.08
11. - 12.	253	2.39
12. - 13.	163	1.54
13. - 14.	145	1.37
14. - 15.	168	1.59
15. - 16.	165	1.56
16. - 17.	295	2.79
17. - 18.	174	1.65
18. - 19.	1732	16.38
19. - 20.	327	3.09
20. - 21.	244	2.31
21. - 22.	293	2.77
22. - 23.	574	5.43
23. - 24.	1400	13.24
24. - 25.	195	1.84
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1541	14.58
2. - 4.	216	2.04
4. - 6.	239	2.26
6. - 8.	257	2.43
8. - 10.	361	3.41
10. - 12.	436	4.12
12. - 14.	552	5.22
14. - 16.	495	4.68
16. - 18.	601	5.68
18. - 20.	450	4.26
20. - 22.	550	5.20
22. - 24.	519	4.91
24. - 26.	597	5.65
26. - 28.	541	5.12
28. - 30.	751	7.10
30. - 32.	586	5.54
32. - 34.	488	4.62
34. - 36.	217	2.05
36. - 38.	60	.57
38. - 40.	111	1.05
40. - 42.	306	2.89
42. - 44.	274	2.59
44. - 46.	202	1.91
46. - 48.	168	1.59
48. - 50.	54	.51
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	24	.23
600. - 800.	764	7.23
800. - 1000.	1229	11.63
1000. - 1200.	255	2.41
1200. - 1400.	321	3.04
1400. - 1600.	566	5.35
1600. - 1800.	944	8.93
1800. - 2000.	1392	13.17
2000. - 2200.	1101	10.41
2200. - 2400.	914	8.65
2400. - 2600.	1189	11.25
2600. - 2800.	851	8.05
2800. - 3000.	469	4.44
3000. - 3200.	308	2.91
3200. - 3400.	172	1.63
3400. - 3600.	69	.65
3600. - 3800.	4	.04
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-68.
1972 IHC 24500 LB GVW VAN 345 CID V8 TRUCK 14 07/19/72 RUN 3
RUN DURATION 22.50 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1705.0974	641.6046	5.9809	11508	3690.0000	490.0000	3200.0000
MV	2	13.7552	7.9358	.0740	11508	24.6000	.6250	23.9750
SPD	3	18.3545	12.5905	.1174	11508	52.6667	.0000	52.6667
TP	4	.4938	.4481	.0088	11508	3.5800	.0900	3.4900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	1496	13.00
NOT	370	3.22

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	757	26.31
3	573	19.92
4	942	32.74
5	602	20.92
6	0	.00
7	2	.07

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	319	2.77
1. - 2.	1206	10.48
2. - 3.	482	4.19
3. - 4.	394	3.42
4. - 5.	334	2.90
5. - 6.	238	2.07
6. - 7.	234	2.03
7. - 8.	258	2.24
8. - 9.	286	2.49
9. - 10.	233	2.02
10. - 11.	231	2.01
11. - 12.	227	1.97
12. - 13.	183	1.59
13. - 14.	247	2.15
14. - 15.	204	1.77
15. - 16.	369	3.21
16. - 17.	356	3.09
17. - 18.	321	2.79
18. - 19.	2102	18.27
19. - 20.	293	2.55
20. - 21.	344	2.99
21. - 22.	418	3.63
22. - 23.	1060	9.21
23. - 24.	1026	8.92
24. - 25.	143	1.24
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
< . - 2.	1885	16.38
2. - 4.	299	2.60
4. - 6.	275	2.39
6. - 8.	304	2.64
8. - 10.	309	2.69
10. - 12.	539	4.68
12. - 14.	655	5.69
14. - 16.	665	5.78
16. - 18.	701	6.09
18. - 20.	501	4.35
20. - 22.	533	4.63
22. - 24.	822	7.14
24. - 26.	786	6.83
26. - 28.	781	6.79
28. - 30.	700	6.08
30. - 32.	495	4.30
32. - 34.	175	1.52
34. - 36.	150	1.30
36. - 38.	160	1.39
38. - 40.	106	.92
40. - 42.	136	1.18
42. - 44.	130	1.13
44. - 46.	78	.68
46. - 48.	72	.63
48. - 50.	126	1.09
50. - 52.	119	1.03
52. - 54.	6	.05
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	4	.03
600. - 800.	1120	9.73
800. - 1000.	1243	10.80
1000. - 1200.	450	3.91
1200. - 1400.	995	8.65
1400. - 1600.	1054	9.16
1600. - 1800.	1384	12.03
1800. - 2000.	1477	12.83
2000. - 2200.	1143	9.93
2200. - 2400.	1000	8.69
2400. - 2600.	484	4.21
2600. - 2800.	374	3.25
2800. - 3000.	632	5.49
3000. - 3200.	101	.88
3200. - 3400.	30	.26
3400. - 3600.	13	.11
3600. - 3800.	4	.03
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-69.

1972 IHC 24500 LB GVW VAN 345 CID V8 TRUCK 14 07/20/72 RUN 3

RUN DURATION 18.42 MIN IDLE SPEED RPM IDLE VAC INCHE HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1795.1826	683.3589	7.2225	8952	3330.0000	135.0000	3195.0000
MV	2	11.7691	9.2958	.0982	8952	24.5750	.0000	24.5750
SPD	3	18.7138	13.5222	.1429	8952	55.6667	.0000	55.6667
TP	4	1.4402	1.3498	.0143	8952	3.6500	.1400	3.5100

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	796	8.89
NOT	2162	24.15

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	427	19.08
3	303	13.54
4	525	23.46
5	979	43.74
6	0	.00
7	4	.18

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	1900	21.22
1. - 2.	982	10.97
2. - 3.	254	2.84
3. - 4.	199	2.22
4. - 5.	173	1.93
5. - 6.	75	.84
6. - 7.	119	1.33
7. - 8.	156	1.74
8. - 9.	122	1.36
9. - 10.	160	1.79
10. - 11.	103	1.15
11. - 12.	91	1.02
12. - 13.	87	.97
13. - 14.	90	1.01
14. - 15.	84	.94
15. - 16.	151	1.69
16. - 17.	178	1.99
17. - 18.	176	1.97
18. - 19.	866	9.67
19. - 20.	611	6.83
20. - 21.	207	2.31
21. - 22.	346	3.87
22. - 23.	623	6.96
23. - 24.	1121	12.52
24. - 25.	78	.87
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0. - 2.	1570	17.54
2. - 4.	326	3.64
4. - 6.	239	2.67
6. - 8.	252	2.82
8. - 10.	306	3.42
10. - 12.	345	3.85
12. - 14.	385	4.30
14. - 16.	450	5.03
16. - 18.	415	4.64
18. - 20.	355	3.97
20. - 22.	408	4.56
22. - 24.	522	5.83
24. - 26.	412	4.60
26. - 28.	489	5.46
28. - 30.	590	6.59
30. - 32.	617	6.89
32. - 34.	416	4.65
34. - 36.	257	2.87
36. - 38.	97	1.08
38. - 40.	25	.28
40. - 42.	13	.15
42. - 44.	30	.34
44. - 46.	41	.46
46. - 48.	76	.85
48. - 50.	100	1.12
50. - 52.	15	.17
52. - 54.	121	1.35
54. - 56.	80	.89
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	1	.01
200. - 400.	9	.10
400. - 600.	17	.19
600. - 800.	269	3.00
800. - 1000.	1313	14.67
1000. - 1200.	455	5.08
1200. - 1400.	520	5.81
1400. - 1600.	655	7.32
1600. - 1800.	1240	13.85
1800. - 2000.	1401	15.65
2000. - 2200.	1003	11.20
2200. - 2400.	476	5.32
2400. - 2600.	303	3.38
2600. - 2800.	294	3.28
2800. - 3000.	361	4.03
3000. - 3200.	371	4.14
3200. - 3400.	264	2.95
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 16

1970 FORD 10,000 lb GVW VAN
WITH 300 CID I-6 ENGINE

TABLE F-70.

1970 FORD 10000 LB GVW VAN 300 CID 16 TRUCK 16 08/17/72 RUN 16
RUN DURATION 10.20 MIN IDLE SPEED 550 RPM IDLE VAC 15 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1714.4783	750.8236	7.5552	9876	4030.0000	350.0000	3680.0000
MV	2	11.5529	6.6189	.0666	9876	24.9500	.0000	24.9500
SPD	3	18.3456	9.6270	.0969	9876	43.9667	.0667	43.9000
TP	4	5.9572	1.5609	.0157	9876	9.9800	.0200	9.9600

PERCENT OF TIME
THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	21	.21
WOT	43	.44

PERCENT OF TIME
GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	396	16.04
2	278	11.26
3	1795	72.70
4	0	.00
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL <	COUNT	PERCENT
. - 1.	61	.62
1. - 2.	103	1.04
2. - 3.	659	6.67
3. - 4.	658	6.66
4. - 5.	849	8.60
5. - 6.	814	8.24
6. - 7.	585	5.92
7. - 8.	327	3.31
8. - 9.	288	2.92
9. - 10.	264	2.67
10. - 11.	193	1.95
11. - 12.	166	1.68
12. - 13.	245	2.48
13. - 14.	666	6.74
14. - 15.	688	6.97
15. - 16.	315	3.19
16. - 17.	356	3.60
17. - 18.	231	2.34
18. - 19.	272	2.75
19. - 20.	276	2.79
20. - 21.	388	3.93
21. - 22.	410	4.15
22. - 23.	475	4.81
23. - 24.	264	2.67
24. - 25.	121	1.23
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	970	9.82
2. - 4.	250	2.53
4. - 6.	196	1.98
6. - 8.	231	2.34
8. - 10.	297	3.01
10. - 12.	412	4.17
12. - 14.	540	5.47
14. - 16.	674	6.82
16. - 18.	808	8.18
18. - 20.	845	8.56
20. - 22.	822	8.32
22. - 24.	905	9.16
24. - 26.	836	8.46
26. - 28.	681	6.90
28. - 30.	464	4.70
30. - 32.	307	3.11
32. - 34.	179	1.81
34. - 36.	174	1.76
36. - 38.	121	1.23
38. - 40.	98	.99
40. - 42.	46	.47
42. - 44.	20	.20
44. - 46.	0	.00
46. - 48.	0	.00
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	10	.10
400. - 600.	1034	10.47
600. - 800.	633	6.41
800. - 1000.	432	4.37
1000. - 1200.	409	4.14
1200. - 1400.	604	6.12
1400. - 1600.	743	7.52
1600. - 1800.	1143	11.57
1800. - 2000.	1555	15.75
2000. - 2200.	1268	12.84
2200. - 2400.	520	5.27
2400. - 2600.	185	1.87
2600. - 2800.	304	3.08
2800. - 3000.	497	5.03
3000. - 3200.	402	4.07
3200. - 3400.	27	.27
3400. - 3600.	4	.04
3600. - 3800.	27	.27
3800. - 4000.	66	.67
4000. - 4200.	8	.08
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 17

1970 WHITE 30,000-lb GVW TRACTOR
WITH 400 CID I-6 ENGINE

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TABLE F-71.

1970 WHITE 30000 LB GVW TRACTOR 400 CID I6 TRUCK 17 08/30/72 RUN 2
RUN DURATION 29.79 MIN. IDLE SPEED 600 RPM. IDLE VAC. 18.5 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1407.1019	548.3187	20.8791	690	4525.0000	200.0000	4325.0000
MV	2	13.1056	7.9045	.3009	690	25.0000	.1250	24.8750
SPD	3	17.5416	11.6718	.4443	690	43.6667	.3333	43.3333

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	60	8.70
1 -	2	37	5.36
2 -	3	19	2.75
3 -	4	24	3.48
4 -	5	19	2.75
5 -	6	22	3.19
6 -	7	21	3.04
7 -	8	18	2.61
8 -	9	19	2.75
9 -	10	11	1.59
10 -	11	14	2.03
11 -	12	13	1.88
12 -	13	21	3.04
13 -	14	18	2.61
14 -	15	11	1.59
15 -	16	29	4.20
16 -	17	33	4.78
17 -	18	84	12.17
18 -	19	42	6.09
19 -	20	12	1.74
20 -	21	15	2.17
21 -	22	27	3.91
22 -	23	43	6.23
23 -	24	61	8.84
24 -	25	15	2.17
25 -	26	2	.29
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	107	15.51
2 -	4	20	2.90
4 -	6	17	2.46
6 -	8	21	3.04
8 -	10	29	4.20
10 -	12	27	3.91
12 -	14	30	4.35
14 -	16	38	5.51
16 -	18	55	7.97
18 -	20	58	8.41
20 -	22	49	7.10
22 -	24	35	5.07
24 -	26	30	4.35
26 -	28	41	5.94
28 -	30	26	3.77
30 -	32	18	2.61
32 -	34	12	1.74
34 -	36	4	.58
36 -	38	31	4.49
38 -	40	29	4.20
40 -	42	12	1.74
42 -	44	1	.14
44 -	46	0	0.00
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	2	.29
400 -	600	62	8.99
600 -	800	55	7.97
800 -	1000	24	3.48
1000 -	1200	79	11.45
1200 -	1400	109	15.80
1400 -	1600	85	12.32
1600 -	1800	99	14.35
1800 -	2000	74	10.72
2000 -	2200	54	7.83
2200 -	2400	44	6.38
2400 -	2600	0	0.00
2600 -	2800	0	0.00
2800 -	3000	0	0.00
3000 -	3200	0	0.00
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	1	.14
4200 -	4400	0	0.00
4400 -	4600	2	.29
4600 -	4800	0	0.00
4800 -	5000	0	0.00

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TABLE F-72.

1970 WHITE 30000 LB GVW TRACTOR 400 CID I6 TRUCK 17 08/30/72 RUN 3
RUN DURATION 22.22 MIN. IDLE SPEED 600 RPM. IDLE VAC. 18.5 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1411.1492	538.6282	21.0139	657	3300.0000	400.0000	2900.0000
MV	2	12.9804	7.4492	.2906	657	24.7500	.2500	24.5000
SPD	3	17.8569	11.9572	.4665	657	43.3333	0.0000	43.3333

PERCENT OF TIME MV AT

LEVEL			COUNT	PERCENT
0	-	1	39	5.94
1	-	2	50	7.61
2	-	3	24	3.65
3	-	4	18	2.74
4	-	5	10	1.52
5	-	6	16	2.44
6	-	7	20	3.04
7	-	8	14	2.13
8	-	9	11	1.67
9	-	10	15	2.28
10	-	11	16	2.44
11	-	12	22	3.35
12	-	13	20	3.04
13	-	14	36	5.48
14	-	15	25	3.81
15	-	16	23	3.50
16	-	17	55	8.37
17	-	18	77	11.72
18	-	19	24	3.65
19	-	20	8	1.22
20	-	21	17	2.59
21	-	22	13	1.98
22	-	23	41	6.24
23	-	24	51	7.76
24	-	25	12	1.83
25	-	26	0	0.00
26	-	27	0	0.00
27	-	28	0	0.00
28	-	29	0	0.00
29	-	30	0	0.00

PERCENT OF TIME MS AT

LEVEL			COUNT	PERCENT
0	-	2	104	15.83
2	-	4	13	1.98
4	-	6	5	.76
6	-	8	19	2.89
8	-	10	57	8.68
10	-	12	14	2.13
12	-	14	33	5.02
14	-	16	40	6.09
16	-	18	37	5.63
18	-	20	28	4.26
20	-	22	42	6.39
22	-	24	59	8.98
24	-	26	46	7.00
26	-	28	40	6.09
28	-	30	32	4.87
30	-	32	15	2.28
32	-	34	6	.91
34	-	36	2	.30
36	-	38	3	.46
38	-	40	18	2.74
40	-	42	29	4.41
42	-	44	15	2.28
44	-	46	0	0.00
46	-	48	0	0.00
46	-	50	0	0.00
50	-	52	0	0.00
52	-	54	0	0.00
54	-	56	0	0.00
56	-	58	0	0.00
58	-	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL			COUNT	PERCENT
0	-	200	0	0.00
200	-	400	0	0.00
400	-	600	91	13.85
600	-	800	24	3.65
800	-	1000	23	3.50
1000	-	1200	50	7.61
1200	-	1400	94	14.31
1400	-	1600	114	17.35
1600	-	1800	128	19.48
1800	-	2000	48	7.31
2000	-	2200	18	2.74
2200	-	2400	47	7.15
2400	-	2600	17	2.59
2600	-	2800	1	.15
2800	-	3000	1	.15
3000	-	3200	0	0.00
3200	-	3400	1	.15
3400	-	3600	0	0.00
3600	-	3800	0	0.00
3800	-	4000	0	0.00
4000	-	4200	0	0.00
4200	-	4400	0	0.00
4400	-	4600	0	0.00
4600	-	4800	0	0.00
4800	-	5000	0	0.00

TABLE F-73.

1970 WHITE 30000 LB GVW TRACTOR 400 CID I6 TRUCK 17 08/30/72 RUN 4

RUN DURATION 21.36 MIN. IDLE SPEED 600 RPM. IDLE VAC. 18.5 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1459.2903	536.7527	21.4358	627	3600.0000	50.0000	3550.0000
MV	2	12.7570	8.2257	.3285	627	25.1250	.1250	25.0000
SPD	3	18.8671	11.0079	.4396	627	99.6667	.3333	99.3333

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	87	13.88
1 -	2	42	6.70
2 -	3	19	3.03
3 -	4	10	1.59
4 -	5	3	.48
5 -	6	8	1.28
6 -	7	12	1.91
7 -	8	18	2.87
8 -	9	19	3.03
9 -	10	7	1.12
10 -	11	15	2.39
11 -	12	13	2.07
12 -	13	22	3.51
13 -	14	19	3.03
14 -	15	22	3.51
15 -	16	16	2.55
16 -	17	45	7.18
17 -	18	61	9.73
18 -	19	17	2.71
19 -	20	12	1.91
20 -	21	10	1.59
21 -	22	33	5.26
22 -	23	60	9.57
23 -	24	44	7.02
24 -	25	11	1.75
25 -	26	2	.32
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	75	11.96
2 -	4	10	1.59
4 -	6	10	1.59
6 -	8	11	1.75
8 -	10	18	2.87
10 -	12	27	4.31
12 -	14	28	4.47
14 -	16	37	5.90
16 -	18	66	10.53
18 -	20	61	9.73
20 -	22	38	6.06
22 -	24	51	8.13
24 -	26	42	6.70
26 -	28	46	7.34
28 -	30	27	4.31
30 -	32	13	2.07
32 -	34	6	.96
34 -	36	12	1.91
36 -	38	4	.64
38 -	40	8	1.28
40 -	42	22	3.51
42 -	44	11	1.75
44 -	46	4	.64
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	1	.16
200 -	400	1	.16
400 -	600	56	8.93
600 -	800	36	5.74
800 -	1000	9	1.44
1000 -	1200	45	7.18
1200 -	1400	138	22.01
1400 -	1600	96	15.31
1600 -	1800	101	16.11
1800 -	2000	42	6.70
2000 -	2200	35	5.58
2200 -	2400	30	4.78
2400 -	2600	28	4.47
2600 -	2800	7	1.12
2800 -	3000	0	0.00
3000 -	3200	0	0.00
3200 -	3400	1	.16
3400 -	3600	0	0.00
3600 -	3800	1	.16
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE F-74.

1970 WHITE 30000 LB GVW TRACTOR 400 CID I6 TRUCK 17 08/30/72 RUN 5
RUN DURATION 22.09 MIN. IDLE SPEED 600 RPM. IDLE VAC. 18.5 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1488.0233	561.0073	22.0896	645	3950.0000	300.0000	3650.0000
MV	2	13.1952	8.1019	.3190	645	24.7500	.1250	24.6250
SPD	3	18.3872	11.0617	.4356	645	47.3333	.3333	47.0000

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	69	10.70
1 -	2	45	6.98
2 -	3	16	2.48
3 -	4	26	4.03
4 -	5	8	1.24
5 -	6	15	2.33
6 -	7	9	1.40
7 -	8	12	1.86
8 -	9	11	1.71
9 -	10	9	1.40
10 -	11	17	2.64
11 -	12	19	2.95
12 -	13	10	1.55
13 -	14	10	1.55
14 -	15	12	1.86
15 -	16	20	3.10
16 -	17	40	6.20
17 -	18	68	10.54
18 -	19	40	6.20
19 -	20	19	2.95
20 -	21	27	4.19
21 -	22	37	5.74
22 -	23	64	9.92
23 -	24	27	4.19
24 -	25	15	2.33
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	78	12.09
2 -	4	14	2.17
4 -	6	15	2.33
6 -	8	11	1.71
8 -	10	23	3.57
10 -	12	26	4.03
12 -	14	31	4.81
14 -	16	51	7.91
16 -	18	39	6.05
18 -	20	65	10.08
20 -	22	84	13.33
22 -	24	46	7.13
24 -	26	9	1.40
26 -	28	22	3.41
28 -	30	27	4.19
30 -	32	33	5.12
32 -	34	17	2.64
34 -	36	10	1.55
36 -	38	4	.62
38 -	40	7	1.09
40 -	42	11	1.71
42 -	44	8	1.24
44 -	46	9	1.40
46 -	48	3	.47
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	5	.78
400 -	600	51	7.91
600 -	800	46	7.13
800 -	1000	18	2.79
1000 -	1200	44	6.82
1200 -	1400	88	13.64
1400 -	1600	122	18.91
1600 -	1800	76	11.78
1800 -	2000	89	13.80
2000 -	2200	37	5.74
2200 -	2400	30	4.65
2400 -	2600	23	3.57
2600 -	2800	14	2.17
2800 -	3000	1	.16
3000 -	3200	0	0.00
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	1	.16
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE F-75.

1970 WHITE 30000 LB GVW TRACTOR 400 CID I6 TRUCK 17 08/30/72 RUN 8
RUN DURATION 21.49 MIN. IDLE SPEED 600 RPM IDLE VAC. 18.5 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1620.4022	586.2806	23.4700	624	2800.0000	550.0000	2250.0000
MV	2	13.9814	7.7070	.3085	624	24.8750	.5000	24.3750
SPD	3	19.0198	12.2656	.4910	624	47.0000	.3333	46.6667

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0 - 1	25	4.01
1 - 2	37	5.93
2 - 3	13	2.08
3 - 4	23	3.69
4 - 5	20	3.21
5 - 6	18	2.88
6 - 7	22	3.53
7 - 8	17	2.72
8 - 9	15	2.40
9 - 10	18	2.88
10 - 11	16	2.56
11 - 12	15	2.40
12 - 13	15	2.40
13 - 14	16	2.56
14 - 15	10	1.60
15 - 16	17	2.72
16 - 17	44	7.05
17 - 18	56	8.97
18 - 19	31	4.97
19 - 20	14	2.24
20 - 21	14	2.24
21 - 22	20	3.21
22 - 23	50	8.01
23 - 24	69	11.06
24 - 25	24	3.85
25 - 26	0	0.00
26 - 27	0	0.00
27 - 28	0	0.00
28 - 29	0	0.00
29 - 30	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0 - 2	85	13.62
2 - 4	13	2.08
4 - 6	9	1.44
6 - 8	14	2.24
8 - 10	19	3.04
10 - 12	30	4.81
12 - 14	35	5.61
14 - 16	47	7.53
16 - 18	35	5.61
18 - 20	36	5.77
20 - 22	49	7.85
22 - 24	51	8.17
24 - 26	30	4.81
26 - 28	62	9.94
28 - 30	24	3.85
30 - 32	14	2.24
32 - 34	5	.80
34 - 36	3	.48
36 - 38	0	0.00
38 - 40	2	.32
40 - 42	4	.64
42 - 44	23	3.69
44 - 46	24	3.85
46 - 48	10	1.60
48 - 50	0	0.00
50 - 52	0	0.00
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0 - 200	0	0.00
200 - 400	0	0.00
400 - 600	54	8.65
600 - 800	37	5.93
800 - 1000	12	1.92
1000 - 1200	20	3.21
1200 - 1400	54	8.65
1400 - 1600	83	13.30
1600 - 1800	97	15.54
1800 - 2000	121	19.39
2000 - 2200	50	8.01
2200 - 2400	25	4.01
2400 - 2600	41	6.57
2600 - 2800	29	4.65
2800 - 3000	1	.16
3000 - 3200	0	0.00
3200 - 3400	0	0.00
3400 - 3600	0	0.00
3600 - 3800	0	0.00
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	0	0.00
4400 - 4600	0	0.00
4600 - 4800	0	0.00
4800 - 5000	0	0.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 18

1971 IHC 32,000 lb GVW TRACTOR
WITH 478 CID V-8 ENGINE

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TABLE F-76.
1971 IHC 32000 LB GVW IHC 478 CID V8 TRUCK 18 09/08/72 RUN 1
RUN DURATION 20.97 MIN IDLE SPEED 500 RPM IDLE VAC 16.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1683.3523	677.4797	6.6077	10512	3110.0000	355.0000	2755.0000
MV	2	13.5662	8.6912	.0848	10512	24.9750	.0000	24.9750
SPD	3	19.7835	12.7886	.1247	10512	50.5333	.0000	50.5333
TP	4	1.4149	1.1339	.0111	10512	4.6000	.0300	4.5700

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	3763	35.80
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	583	22.18
3	315	11.99
4	819	31.16
5	911	34.67
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	<	COUNT	PERCENT
. - 1.		197	1.87
1. - 2.		1487	14.15
2. - 3.		589	5.60
3. - 4.		368	3.50
4. - 5.		280	2.66
5. - 6.		246	2.34
6. - 7.		242	2.30
7. - 8.		261	2.48
8. - 9.		209	1.99
9. - 10.		141	1.34
10. - 11.		172	1.64
11. - 12.		159	1.51
12. - 13.		132	1.26
13. - 14.		182	1.73
14. - 15.		162	1.54
15. - 16.		345	3.28
16. - 17.		1040	9.89
17. - 18.		566	5.38
18. - 19.		252	2.40
19. - 20.		174	1.66
20. - 21.		206	1.96
21. - 22.		264	2.51
22. - 23.		470	4.47
23. - 24.		782	7.44
24. - 25.		1586	15.09
25. - 26.		0	.00
26. - 27.		0	.00
27. - 28.		0	.00
28. - 29.		0	.00
29. - 30.		0	.00

PERCENT OF TIME MS AT

LEVEL	<	COUNT	PERCENT
. - 2.		1386	13.18
2. - 4.		257	2.44
4. - 6.		213	2.03
6. - 8.		177	1.68
8. - 10.		296	2.82
10. - 12.		595	5.66
12. - 14.		508	4.83
14. - 16.		530	5.04
16. - 18.		589	5.60
18. - 20.		766	7.29
20. - 22.		764	7.27
22. - 24.		488	4.64
24. - 26.		804	7.65
26. - 28.		845	8.04
28. - 30.		616	5.86
30. - 32.		294	2.80
32. - 34.		132	1.26
34. - 36.		95	.90
36. - 38.		30	.29
38. - 40.		67	.64
40. - 42.		198	1.88
42. - 44.		137	1.30
44. - 46.		279	2.65
46. - 48.		323	3.07
48. - 50.		106	1.01
50. - 52.		17	.16
52. - 54.		0	.00
54. - 56.		0	.00
56. - 58.		0	.00
58. - 60.		0	.00

PERCENT OF TIME RPM AT

LEVEL	<	COUNT	PERCENT
. - 200.		0	.00
200. - 400.		36	.34
400. - 600.		1551	14.75
600. - 800.		122	1.16
800. - 1000.		264	2.51
1000. - 1200.		285	2.71
1200. - 1400.		609	5.79
1400. - 1600.		1088	10.35
1600. - 1800.		1845	17.55
1800. - 2000.		1063	10.11
2000. - 2200.		1075	10.23
2200. - 2400.		1015	9.66
2400. - 2600.		623	5.93
2600. - 2800.		722	6.87
2800. - 3000.		204	1.94
3000. - 3200.		10	.10
3200. - 3400.		0	.00
3400. - 3600.		0	.00
3600. - 3800.		0	.00
3800. - 4000.		0	.00
4000. - 4200.		0	.00
4200. - 4400.		0	.00
4400. - 4600.		0	.00
4600. - 4800.		0	.00
4800. - 5000.		0	.00

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TABLE F-77.

1971 IHC 32000 LB GVW IHC 478 CID V8 TRUCK 18 09/08/72 RUN 4
RUN DURATION 21.75 MIN IDLE SPEED 500 RPM IDLE VAC 16.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1559.1692	697.4097	6.5934	11188	3420.0000	380.0000	3040.0000
MV	2	13.5511	8.5405	.0807	11188	24.9750	.0000	24.9750
SPD	3	18.9553	13.3010	.1257	11188	51.0667	.0000	51.0667
TP	4	1.3443	1.2384	.0117	11188	4.5400	.2500	4.2900

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	4610	41.20
001	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	660	23.60
3	412	14.73
4	689	24.63
5	1036	37.04
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	431	3.85
1. - 2.	1565	13.99
2. - 3.	515	4.60
3. - 4.	286	2.56
4. - 5.	263	2.35
5. - 6.	203	1.81
6. - 7.	212	1.89
7. - 8.	206	1.84
8. - 9.	158	1.41
9. - 10.	196	1.75
10. - 11.	149	1.33
11. - 12.	166	1.48
12. - 13.	210	1.88
13. - 14.	190	1.70
14. - 15.	218	1.95
15. - 16.	453	4.05
16. - 17.	1357	12.13
17. - 18.	490	4.38
18. - 19.	252	2.25
19. - 20.	194	1.73
20. - 21.	214	1.91
21. - 22.	319	2.85
22. - 23.	695	6.21
23. - 24.	1200	10.73
24. - 25.	1026	9.17
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1633	14.60
2. - 4.	221	1.98
4. - 6.	327	2.92
6. - 8.	428	3.83
8. - 10.	625	5.59
10. - 12.	525	4.69
12. - 14.	642	5.74
14. - 16.	479	4.28
16. - 18.	625	5.59
18. - 20.	603	5.39
20. - 22.	648	5.79
22. - 24.	391	3.49
24. - 26.	497	4.44
26. - 28.	809	7.23
28. - 30.	589	5.26
30. - 32.	537	4.80
32. - 34.	380	3.40
34. - 36.	95	.85
36. - 38.	32	.29
38. - 40.	21	.19
40. - 42.	96	.86
42. - 44.	239	2.14
44. - 46.	263	2.35
46. - 48.	251	2.24
48. - 50.	213	1.90
50. - 52.	19	.17
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	2	.02
400. - 600.	1824	16.30
600. - 800.	318	2.84
800. - 1000.	486	4.34
1000. - 1200.	761	6.80
1200. - 1400.	884	7.90
1400. - 1600.	1211	10.82
1600. - 1800.	1706	15.27
1800. - 2000.	1308	11.69
2000. - 2200.	623	5.57
2200. - 2400.	419	3.75
2400. - 2600.	560	5.01
2600. - 2800.	539	4.82
2800. - 3000.	506	4.52
3000. - 3200.	22	.20
3200. - 3400.	15	.13
3400. - 3600.	2	.02
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-78.

1971 IHC 32000 LB GVW THC 478 CID V8 TRUCK 18 09/08/72 RUN 5

RUN DURATION 22.56 MIN IDLE SPEED 500 RPM IDLE VAC 16.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1593.9219	753.6561	9.1394	6800	3465.0000	335.0000	3130.0000
MV	2	13.8813	8.4773	.1028	6800	24.9750	.0000	24.9750
SPD	3	18.4836	14.5044	.1759	6800	50.0000	.0000	50.0000
TP	4	1.3756	1.2010	.0146	6800	4.7600	.1600	4.6000

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	2956	43.47
NOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	429	25.24
3	300	17.65
4	349	20.53
5	622	36.59
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	300	4.41
1. - 2.	801	11.78
2. - 3.	324	4.76
3. - 4.	185	2.72
4. - 5.	140	2.06
5. - 6.	124	1.82
6. - 7.	156	2.29
7. - 8.	111	1.63
8. - 9.	132	1.94
9. - 10.	132	1.94
10. - 11.	79	1.16
11. - 12.	84	1.24
12. - 13.	68	1.00
13. - 14.	70	1.03
14. - 15.	117	1.72
15. - 16.	153	2.25
16. - 17.	896	13.18
17. - 18.	547	8.04
18. - 19.	168	2.47
19. - 20.	134	1.97
20. - 21.	178	2.62
21. - 22.	183	2.69
22. - 23.	291	4.28
23. - 24.	644	9.47
24. - 25.	783	11.51
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1143	16.81
2. - 4.	176	2.59
4. - 6.	175	2.57
6. - 8.	370	5.44
8. - 10.	412	6.06
10. - 12.	386	5.68
12. - 14.	349	5.13
14. - 16.	343	5.04
16. - 18.	386	5.68
18. - 20.	444	6.53
20. - 22.	251	3.69
22. - 24.	304	4.47
24. - 26.	116	1.71
26. - 28.	128	1.88
28. - 30.	352	5.18
30. - 32.	184	2.71
32. - 34.	76	1.12
34. - 36.	26	.38
36. - 38.	28	.41
38. - 40.	76	1.12
40. - 42.	315	4.63
42. - 44.	268	3.94
44. - 46.	235	3.46
46. - 48.	223	3.28
48. - 50.	33	.49
50. - 52.	1	.01
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	1292	19.00
600. - 800.	251	3.69
800. - 1000.	206	3.03
1000. - 1200.	412	6.06
1200. - 1400.	509	7.49
1400. - 1600.	625	9.19
1600. - 1800.	799	11.75
1800. - 2000.	564	8.29
2000. - 2200.	375	5.51
2200. - 2400.	378	5.56
2400. - 2600.	659	9.69
2600. - 2800.	549	8.07
2800. - 3000.	126	1.85
3000. - 3200.	33	.49
3200. - 3400.	17	.25
3400. - 3600.	4	.06
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-79.

1971 IHC 32000 LB GVW IHC 478 CID V8 TRUCK 16 09/11/72 RUN 7

HEA DURATION 25.00 MIN IDLE SPEED 500 RPM IDLE VAC 16.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1465.4883	671.6500	6.4001	11020	3220.0000	295.0000	2925.0000
MV	2	14.1988	8.3413	.0795	11020	24.4750	.0000	24.4750
SPD	3	17.1018	12.8874	.1228	11020	46.8667	.0000	48.8667
TP	4	1.2160	.9408	.0090	11020	4.2600	.2400	4.0200

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4669	42.37
.01	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	2	.02
2	783	28.42
3	473	17.17
4	379	13.76
5	1118	40.58
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	504	4.57
1. - 2.	945	8.58
2. - 3.	584	5.30
3. - 4.	292	2.65
4. - 5.	312	2.83
5. - 6.	267	2.42
6. - 7.	190	1.72
7. - 8.	202	1.83
8. - 9.	178	1.62
9. - 10.	263	2.39
10. - 11.	183	1.66
11. - 12.	135	1.23
12. - 13.	83	.75
13. - 14.	105	.95
14. - 15.	158	1.43
15. - 16.	350	3.18
16. - 17.	1608	14.59
17. - 18.	590	5.35
18. - 19.	338	3.05
19. - 20.	244	2.21
20. - 21.	288	2.61
21. - 22.	251	2.28
22. - 23.	526	4.77
23. - 24.	1231	11.17
24. - 25.	1197	10.86
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
< 2.	1901	17.25
2. - 4.	252	2.29
4. - 6.	363	3.29
6. - 8.	498	4.52
8. - 10.	550	4.99
10. - 12.	678	6.15
12. - 14.	693	6.29
14. - 16.	603	5.47
16. - 18.	506	4.59
18. - 20.	718	6.52
20. - 22.	673	6.11
22. - 24.	717	6.51
24. - 26.	380	3.45
26. - 28.	308	2.79
28. - 30.	364	3.30
30. - 32.	358	3.25
32. - 34.	206	1.87
34. - 36.	86	.78
36. - 38.	70	.64
38. - 40.	156	1.42
40. - 42.	272	2.47
42. - 44.	269	2.44
44. - 46.	208	1.89
46. - 48.	170	1.54
48. - 50.	21	.19
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	22	.20
400. - 600.	2110	19.15
600. - 800.	302	2.74
800. - 1000.	334	3.03
1000. - 1200.	919	8.34
1200. - 1400.	1365	12.39
1400. - 1600.	1066	9.67
1600. - 1800.	1416	12.85
1800. - 2000.	1064	9.66
2000. - 2200.	655	5.94
2200. - 2400.	518	4.70
2400. - 2600.	703	6.38
2600. - 2800.	456	4.14
2800. - 3000.	63	.57
3000. - 3200.	24	.22
3200. - 3400.	3	.03
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-80.

1971 IHC 32000 LB GVW IHC 478 CID V8 TRUCK IR 09/11/72 RUN 8
RUN COMMENTS 65.3C MIN. IDLE SPEED 500 RPM IDLE VAC 16.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1372.4636	680.8453	5.9696	13008	3190.0000	320.0000	2870.0000
MV	2	13.4567	8.0879	.0707	13008	24.9750	.0000	24.9750
SPD	3	16.3662	13.1208	.1150	13008	47.2000	.0000	47.2000
TP	4	1.1746	.9082	.0080	13008	4.3900	.0000	4.3900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5352	41.22
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	1032	31.73
3	291	8.95
4	854	26.26
5	1075	33.06
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	824	6.33
1. - 2.	928	7.13
2. - 3.	585	4.50
3. - 4.	356	2.74
4. - 5.	404	3.11
5. - 6.	262	2.01
6. - 7.	292	2.24
7. - 8.	243	1.87
8. - 9.	183	1.41
9. - 10.	195	1.50
10. - 11.	196	1.51
11. - 12.	183	1.41
12. - 13.	196	1.51
13. - 14.	193	1.48
14. - 15.	239	1.84
15. - 16.	742	5.70
16. - 17.	2059	15.83
17. - 18.	671	5.16
18. - 19.	402	3.09
19. - 20.	329	2.53
20. - 21.	365	2.81
21. - 22.	432	3.32
22. - 23.	496	3.81
23. - 24.	1128	8.67
24. - 25.	1105	8.49
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	2705	20.79
2. - 4.	393	3.02
4. - 6.	433	3.33
6. - 8.	515	3.96
8. - 10.	635	4.88
10. - 12.	631	4.85
12. - 14.	753	5.79
14. - 16.	808	6.21
16. - 18.	750	5.77
18. - 20.	636	4.89
20. - 22.	739	5.68
22. - 24.	494	3.80
24. - 26.	423	3.25
26. - 28.	330	2.54
28. - 30.	524	4.03
30. - 32.	555	4.27
32. - 34.	294	2.26
34. - 36.	138	1.06
36. - 38.	116	.89
38. - 40.	87	.67
40. - 42.	273	2.10
42. - 44.	393	3.02
44. - 46.	328	2.52
46. - 48.	55	.42
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	63	.48
400. - 600.	2986	22.96
600. - 800.	511	3.93
800. - 1000.	615	4.73
1000. - 1200.	1004	7.72
1200. - 1400.	1545	11.88
1400. - 1600.	1287	9.89
1600. - 1800.	1457	11.20
1800. - 2000.	1167	8.97
2000. - 2200.	572	4.40
2200. - 2400.	422	3.24
2400. - 2600.	877	6.74
2600. - 2800.	407	3.13
2800. - 3000.	77	.59
3000. - 3200.	18	.14
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-81.

1971 IHC 3600 LH 6VA IHC 478 CID V8 TRUCK 1B 09/11/72 RUN 9

RUN DURATION 25. 5 MIN. IDLE SPEED 560 RPM IDLE VAC 16.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1439.8779	717.6043	6.2330	13240	3125.0000	85.0000	3040.0000
MV	2	14.3222	8.0729	.0702	13240	24.9750	.0000	24.9750
SPD	3	18.0986	13.4585	.1170	13240	50.2000	.0000	50.2000
TP	4	1.2914	.9508	.0083	13240	4.5100	.2400	4.3700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5808	43.87
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	1077	32.54
3	590	17.82
4	579	17.49
5	1064	32.15
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	418	3.16
1. - 2.	1150	8.69
2. - 3.	717	5.42
3. - 4.	363	2.74
4. - 5.	344	2.60
5. - 6.	255	1.93
6. - 7.	226	1.72
7. - 8.	205	1.55
8. - 9.	242	1.83
9. - 10.	212	1.60
10. - 11.	221	1.67
11. - 12.	185	1.40
12. - 13.	151	1.14
13. - 14.	141	1.06
14. - 15.	149	1.13
15. - 16.	387	2.91
16. - 17.	2406	18.14
17. - 18.	1033	7.80
18. - 19.	402	3.04
19. - 20.	233	1.76
20. - 21.	274	2.07
21. - 22.	386	2.92
22. - 23.	590	4.46
23. - 24.	944	7.13
24. - 25.	1610	12.16
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	3014	22.76
2. - 4.	318	2.40
4. - 6.	434	3.28
6. - 8.	496	3.75
8. - 10.	595	4.49
10. - 12.	859	6.49
12. - 14.	914	6.90
14. - 16.	579	4.37
16. - 18.	448	3.38
18. - 20.	788	5.95
20. - 22.	703	5.31
22. - 24.	499	3.77
24. - 26.	465	3.51
26. - 28.	645	4.87
28. - 30.	543	4.10
30. - 32.	378	2.85
32. - 34.	424	3.20
34. - 36.	59	.45
36. - 38.	19	.14
38. - 40.	37	.28
40. - 42.	166	1.25
42. - 44.	197	1.49
44. - 46.	109	.82
46. - 48.	356	2.69
48. - 50.	232	1.75
50. - 52.	3	.02
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	2	.02
200. - 400.	7	.05
400. - 600.	3354	25.33
600. - 800.	289	2.18
800. - 1000.	466	3.52
1000. - 1200.	643	4.86
1200. - 1400.	868	6.56
1400. - 1600.	1467	11.08
1600. - 1800.	2101	15.87
1800. - 2000.	1476	11.15
2000. - 2200.	556	4.20
2200. - 2400.	425	3.21
2400. - 2600.	613	4.63
2600. - 2800.	667	5.04
2800. - 3000.	276	2.08
3000. - 3200.	30	.23
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 19

1971 IHC 32,000 lb GVW TRACTOR
WITH 478 CID V-8 ENGINE

TABLE F-82.

1971 INC 32000 LB GVW TRC 4/M CID V8 TRUCK 19 09/14/72 RUN 3

RUN DURATION 22.11 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1715.5698	652.5064	6.1366	11308	3440.0000	395.0000	3045.0000
MV	2	14.2838	8.7591	.0824	11308	24.4750	.0000	24.4750
SPD	3	18.8039	13.4489	.1312	11308	53.6000	.0000	53.6000
TP	4	2.5700	2.2720	.0214	11308	6.4300	.0100	6.3200

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	5119	45.27
OUT	1838	16.25

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	3	.11
2	679	24.02
3	489	17.30
4	614	21.72
5	1038	36.72
6	0	.00
7	4	.14

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	20	.18
1. - 2.	1635	14.46
2. - 3.	971	8.59
3. - 4.	255	2.26
4. - 5.	223	1.97
5. - 6.	172	1.52
6. - 7.	159	1.41
7. - 8.	160	1.41
8. - 9.	159	1.41
9. - 10.	180	1.59
10. - 11.	181	1.60
11. - 12.	225	1.99
12. - 13.	220	1.95
13. - 14.	211	1.87
14. - 15.	210	1.86
15. - 16.	187	1.65
16. - 17.	260	2.30
17. - 18.	270	2.39
18. - 19.	268	2.37
19. - 20.	399	3.53
20. - 21.	1919	16.97
21. - 22.	324	2.87
22. - 23.	339	3.00
23. - 24.	845	7.47
24. - 25.	1516	13.41
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	2047	18.10
2. - 4.	295	2.61
4. - 6.	232	2.05
6. - 8.	340	3.01
8. - 10.	342	3.02
10. - 12.	483	4.27
12. - 14.	815	7.21
14. - 16.	680	6.01
16. - 18.	401	3.55
18. - 20.	391	3.46
20. - 22.	745	6.59
22. - 24.	416	3.68
24. - 26.	544	4.81
26. - 28.	482	4.26
28. - 30.	728	6.44
30. - 32.	738	6.53
32. - 34.	439	3.88
34. - 36.	128	1.13
36. - 38.	26	.23
38. - 40.	46	.41
40. - 42.	68	.60
42. - 44.	119	1.05
44. - 46.	229	2.03
46. - 48.	104	.92
48. - 50.	79	.70
50. - 52.	297	2.63
52. - 54.	94	.83
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	1	.01
400. - 600.	53	.47
600. - 800.	540	4.78
800. - 1000.	2022	17.88
1000. - 1200.	444	3.93
1200. - 1400.	487	4.31
1400. - 1600.	770	6.81
1600. - 1800.	1695	14.99
1800. - 2000.	1756	15.53
2000. - 2200.	1033	9.14
2200. - 2400.	666	5.89
2400. - 2600.	595	5.26
2600. - 2800.	507	4.48
2800. - 3000.	521	4.61
3000. - 3200.	193	1.71
3200. - 3400.	21	.19
3400. - 3600.	4	.04
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-83.

1971 IHC 32000 LB GVW IHC 478 CID V8 TRUCK 19 09/14/72 RUN 4
RUN DURATION 14.95 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1816.3313	552.4620	5.4627	10228	3085.0000	650.0000	2435.0000
MV	2	14.2541	8.7482	.0865	10228	24.9750	.0000	24.9750
SPD	3	20.7518	12.0634	.1193	10228	51.7333	.0000	51.7333
TP	4	2.4028	1.8794	.0186	10228	6.9100	.4900	6.4200

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	4028	39.38
NOT	388	3.79

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	347	13.57
3	630	24.64
4	765	29.92
5	815	31.87
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	31	.30
1. - 2.	950	9.29
2. - 3.	760	7.43
3. - 4.	521	5.09
4. - 5.	428	4.18
5. - 6.	326	3.19
6. - 7.	277	2.71
7. - 8.	220	2.15
8. - 9.	215	2.10
9. - 10.	173	1.69
10. - 11.	165	1.61
11. - 12.	157	1.54
12. - 13.	140	1.37
13. - 14.	201	1.97
14. - 15.	210	2.05
15. - 16.	172	1.68
16. - 17.	225	2.20
17. - 18.	156	1.53
18. - 19.	147	1.44
19. - 20.	385	3.76
20. - 21.	1130	11.05
21. - 22.	285	2.79
22. - 23.	443	4.33
23. - 24.	487	4.65
24. - 25.	1524	14.90
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	794	7.76
2. - 4.	193	1.89
4. - 6.	170	1.66
6. - 8.	220	2.15
8. - 10.	357	3.49
10. - 12.	671	6.56
12. - 14.	667	6.52
14. - 16.	871	8.52
16. - 18.	689	6.74
18. - 20.	485	4.74
20. - 22.	424	4.15
22. - 24.	630	6.16
24. - 26.	800	7.82
26. - 28.	749	7.32
28. - 30.	578	5.65
30. - 32.	544	5.32
32. - 34.	183	1.79
34. - 36.	39	.38
36. - 38.	34	.33
38. - 40.	23	.22
40. - 42.	182	1.78
42. - 44.	318	3.11
44. - 46.	324	3.17
46. - 48.	215	2.10
48. - 50.	34	.33
50. - 52.	34	.33
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	471	4.61
800. - 1000.	827	8.09
1000. - 1200.	245	2.40
1200. - 1400.	586	5.73
1400. - 1600.	1120	10.95
1600. - 1800.	1429	13.97
1800. - 2000.	1617	15.81
2000. - 2200.	1360	13.30
2200. - 2400.	784	7.67
2400. - 2600.	972	9.50
2600. - 2800.	649	6.35
2800. - 3000.	156	1.53
3000. - 3200.	12	.12
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-84.

1971 IHC 32000 LB GVW TRC 478 CID V8 TRUCK 19 09/14/72 RUN 5
RUN DURATION 21.35 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1768.5811	584.2028	5.5722	10992	3070.0000	700.0000	2370.0000
MV	2	14.5592	8.6791	.0828	10992	24.9750	.1250	24.8500
SPD	3	19.3558	13.1444	.1254	10992	53.0667	.0000	53.0667
TP	4	2.3870	1.4803	.0187	10992	6.9200	.4500	6.4700

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4727	43.00
WOT	618	5.62

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	2	.07
2	549	19.98
3	489	17.79
4	903	32.86
5	804	29.26
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	31	.28
1. - 2.	928	8.44
2. - 3.	965	8.80
3. - 4.	455	4.14
4. - 5.	413	3.76
5. - 6.	267	2.43
6. - 7.	292	2.66
7. - 8.	220	2.00
8. - 9.	240	2.18
9. - 10.	142	1.29
10. - 11.	236	2.15
11. - 12.	225	2.05
12. - 13.	174	1.58
13. - 14.	180	1.64
14. - 15.	141	1.28
15. - 16.	222	2.02
16. - 17.	181	1.65
17. - 18.	202	1.84
18. - 19.	175	1.59
19. - 20.	256	2.33
20. - 21.	1667	15.17
21. - 22.	261	2.37
22. - 23.	457	4.16
23. - 24.	1009	9.18
24. - 25.	1673	15.22
25. - 26.	3	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1634	14.87
2. - 4.	186	1.69
4. - 6.	150	1.36
6. - 8.	219	1.99
8. - 10.	349	3.18
10. - 12.	642	5.84
12. - 14.	729	6.63
14. - 16.	530	4.82
16. - 18.	645	5.87
18. - 20.	714	6.50
20. - 22.	612	5.57
22. - 24.	753	6.85
24. - 26.	843	7.67
26. - 28.	759	6.91
28. - 30.	566	5.15
30. - 32.	376	3.42
32. - 34.	137	1.25
34. - 36.	70	.64
36. - 38.	25	.23
38. - 40.	13	.12
40. - 42.	23	.21
42. - 44.	44	.40
44. - 46.	144	1.31
46. - 48.	395	3.59
48. - 50.	329	2.99
50. - 52.	82	.75
52. - 54.	23	.21
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	0	.00
600. - 800.	368	3.35
800. - 1000.	1406	12.79
1000. - 1200.	342	3.11
1200. - 1400.	498	4.53
1400. - 1600.	1208	10.99
1600. - 1800.	1780	16.19
1800. - 2000.	1715	15.60
2000. - 2200.	1342	12.21
2200. - 2400.	709	6.45
2400. - 2600.	430	3.91
2600. - 2800.	674	6.13
2800. - 3000.	471	4.28
3000. - 3200.	49	.45
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-8E.
1971 IHC 36000 LB GVW THC 478 CID V8 TRUCK 19 09/14/72 RUN 6
RUN DURATION 20.31 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1731.1445	545.3230	5.3391	10432	3025.0000	525.0000	2500.0000
MV	2	14.2398	8.7496	.0862	10432	24.8750	.6500	24.2250
SPD	3	20.3693	12.6944	.1243	10432	52.3333	.0000	52.3333
TP	4	2.4727	2.0267	.0198	10432	6.9200	.4300	6.4900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4190	40.16
OUT	788	7.55

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	3	.12
2	413	15.84
3	552	21.17
4	751	28.80
5	889	34.09
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	136	1.30
1. - 2.	1267	12.15
2. - 3.	741	7.10
3. - 4.	362	3.47
4. - 5.	239	2.29
5. - 6.	194	1.86
6. - 7.	203	1.95
7. - 8.	228	2.19
8. - 9.	191	1.83
9. - 10.	246	2.36
10. - 11.	272	2.61
11. - 12.	214	2.05
12. - 13.	179	1.72
13. - 14.	157	1.50
14. - 15.	205	1.97
15. - 16.	154	1.48
16. - 17.	165	1.58
17. - 18.	167	1.60
18. - 19.	193	1.85
19. - 20.	244	2.34
20. - 21.	1442	13.82
21. - 22.	337	3.23
22. - 23.	485	4.65
23. - 24.	1140	10.93
24. - 25.	1271	12.18
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	1142	10.95
2. - 4.	123	1.18
4. - 6.	118	1.13
6. - 8.	179	1.72
8. - 10.	367	3.52
10. - 12.	748	7.17
12. - 14.	713	6.83
14. - 16.	606	5.81
16. - 18.	680	6.52
18. - 20.	854	8.19
20. - 22.	532	5.10
22. - 24.	518	4.97
24. - 26.	453	4.34
26. - 28.	767	7.35
28. - 30.	702	6.73
30. - 32.	496	4.75
32. - 34.	232	2.22
34. - 36.	106	1.02
36. - 38.	39	.37
38. - 40.	36	.35
40. - 42.	144	1.38
42. - 44.	96	.92
44. - 46.	127	1.22
46. - 48.	278	2.66
48. - 50.	240	2.30
50. - 52.	131	1.26
52. - 54.	5	.05
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	3	.03
600. - 800.	163	1.56
800. - 1000.	1305	12.51
1000. - 1200.	367	3.52
1200. - 1400.	599	5.74
1400. - 1600.	1329	12.74
1600. - 1800.	2257	21.64
1800. - 2000.	1669	16.00
2000. - 2200.	855	8.20
2200. - 2400.	547	5.24
2400. - 2600.	424	4.06
2600. - 2800.	504	4.83
2800. - 3000.	389	3.73
3000. - 3200.	21	.20
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-86.
1971 IHC 32000 LB GVW TRC 478 CID V8 TRUCK 19 09/14/72 RUN 7
RUN DURATION 21.51 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1705.6426	611.8395	5.8252	11032	3175.0000	550.0000	2625.0000
MV	2	13.6542	9.0880	.0865	11032	24.9250	.5250	24.4000
SPD	3	19.2367	13.5222	.1287	11032	51.4667	.0000	51.4667
TP	4	2.0122	2.0546	.0196	11032	6.9300	.3000	6.6300

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4715	42.74
PART	272	2.47

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	692	25.09
3	416	15.08
4	651	23.60
5	998	36.19
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< . - 1.	127	1.15
1. - 2.	1495	13.55
2. - 3.	1253	11.36
3. - 4.	388	3.52
4. - 5.	273	2.47
5. - 6.	238	2.16
6. - 7.	194	1.76
7. - 8.	177	1.60
8. - 9.	127	1.15
9. - 10.	128	1.16
10. - 11.	180	1.63
11. - 12.	155	1.41
12. - 13.	148	1.34
13. - 14.	139	1.26
14. - 15.	150	1.36
15. - 16.	156	1.41
16. - 17.	149	1.35
17. - 18.	133	1.21
18. - 19.	159	1.44
19. - 20.	293	2.66
20. - 21.	1952	17.69
21. - 22.	347	3.15
22. - 23.	396	3.59
23. - 24.	936	8.48
24. - 25.	1339	12.14
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< . - 2.	1906	17.28
2. - 4.	284	2.57
4. - 6.	201	1.82
6. - 8.	207	1.88
8. - 10.	358	3.25
10. - 12.	526	4.77
12. - 14.	568	5.15
14. - 16.	615	5.57
16. - 18.	606	5.49
18. - 20.	768	6.96
20. - 22.	558	5.06
22. - 24.	445	4.03
24. - 26.	302	2.74
26. - 28.	422	3.83
28. - 30.	686	6.22
30. - 32.	483	4.38
32. - 34.	354	3.21
34. - 36.	375	3.40
36. - 38.	244	2.21
38. - 40.	235	2.13
40. - 42.	224	2.03
42. - 44.	216	1.96
44. - 46.	150	1.36
46. - 48.	188	1.70
48. - 50.	85	.77
50. - 52.	26	.24
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	0	.00
400. - 600.	7	.06
600. - 800.	565	5.12
800. - 1000.	1826	16.55
1000. - 1200.	354	3.21
1200. - 1400.	674	6.11
1400. - 1600.	874	7.92
1600. - 1800.	1752	15.88
1800. - 2000.	1292	11.71
2000. - 2200.	1204	10.91
2200. - 2400.	857	7.77
2400. - 2600.	712	6.45
2600. - 2800.	577	5.23
2800. - 3000.	288	2.61
3000. - 3200.	50	.45
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-87.

1971 IHC 32000 LB GVW INC 478 CID V8 TRUCK 19 09/14/72 RUN 8
RUN DURATION 21.02 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1701.9412	600.0431	5.7739	10800	3115.0000	570.0000	2545.0000
MV	2	13.6550	9.1300	.0879	10800	24.9750	.1000	24.8750
SPD	3	19.6758	13.0354	.1254	10800	51.2000	.0000	51.2000
TP	4	2.6386	2.1070	.0203	10800	6.9300	.6500	6.2800

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4438	41.09
WOT	328	3.04

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	517	19.15
3	477	17.67
4	679	25.15
5	1027	38.04
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	256	2.37
1. - 2.	1468	13.59
2. - 3.	1241	11.49
3. - 4.	324	3.00
4. - 5.	205	1.90
5. - 6.	157	1.45
6. - 7.	150	1.39
7. - 8.	158	1.46
8. - 9.	146	1.35
9. - 10.	155	1.44
10. - 11.	136	1.26
11. - 12.	189	1.75
12. - 13.	155	1.44
13. - 14.	147	1.36
14. - 15.	142	1.31
15. - 16.	120	1.11
16. - 17.	141	1.31
17. - 18.	174	1.61
18. - 19.	150	1.39
19. - 20.	285	2.64
20. - 21.	1826	16.91
21. - 22.	335	3.10
22. - 23.	496	4.59
23. - 24.	1130	10.46
24. - 25.	1114	10.31
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	1586	14.69
2. - 4.	161	1.49
4. - 6.	188	1.74
6. - 8.	228	2.11
8. - 10.	320	2.96
10. - 12.	651	6.03
12. - 14.	553	5.12
14. - 16.	660	6.11
16. - 18.	582	5.39
18. - 20.	785	7.27
20. - 22.	672	6.22
22. - 24.	386	3.57
24. - 26.	542	5.02
26. - 28.	504	4.67
28. - 30.	607	5.62
30. - 32.	747	6.92
32. - 34.	411	3.81
34. - 36.	60	.56
36. - 38.	25	.23
38. - 40.	38	.35
40. - 42.	187	1.73
42. - 44.	283	2.62
44. - 46.	334	3.09
46. - 48.	219	2.03
48. - 50.	42	.39
50. - 52.	29	.27
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	6	.06
600. - 800.	325	3.01
800. - 1000.	1799	16.66
1000. - 1200.	450	4.17
1200. - 1400.	688	6.37
1400. - 1600.	1027	9.51
1600. - 1800.	1890	17.50
1800. - 2000.	1474	13.65
2000. - 2200.	672	6.22
2200. - 2400.	645	5.97
2400. - 2600.	812	7.52
2600. - 2800.	826	7.65
2800. - 3000.	163	1.51
3000. - 3200.	23	.21
3200. - 3400.	0	.00
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-98.
1971 IHC 32000 LB GVW IHC 478 CID V8 TRUCK 19 09/14/72 RUN 4
RUN DURATION 20.9 MIN IDLE SPEED 500 RPM IDLE VAC 20.0 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1777.2031	581.6088	6.6229	7712	3255.0000	510.0000	2745.0000
MV	2	13.0626	9.3927	.1070	7712	24.7750	.0000	24.7750
SPD	3	20.0138	12.0143	.1368	7712	51.0000	.0000	51.0000
TP	4	2.8565	2.2160	.0252	7712	6.9500	.5700	6.3800

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	2984	38.69
WOT	373	4.84

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	20	1.04
2	318	16.49
3	300	15.56
4	700	36.31
5	587	30.45
6	0	.00
7	3	.16

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	204	2.65
1. - 2.	1340	17.38
2. - 3.	766	9.93
3. - 4.	323	4.19
4. - 5.	127	1.65
5. - 6.	111	1.44
6. - 7.	157	2.04
7. - 8.	156	2.02
8. - 9.	93	1.21
9. - 10.	88	1.14
10. - 11.	68	.88
11. - 12.	82	1.06
12. - 13.	115	1.49
13. - 14.	94	1.22
14. - 15.	69	.89
15. - 16.	114	1.48
16. - 17.	90	1.17
17. - 18.	101	1.31
18. - 19.	122	1.58
19. - 20.	213	2.76
20. - 21.	967	12.28
21. - 22.	212	2.75
22. - 23.	419	5.43
23. - 24.	929	12.05
24. - 25.	772	10.01
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0. - 2.	733	9.50
2. - 4.	164	2.13
4. - 6.	159	2.06
6. - 8.	228	2.96
8. - 10.	234	3.03
10. - 12.	322	4.18
12. - 14.	428	5.55
14. - 16.	611	7.92
16. - 18.	573	7.43
18. - 20.	573	7.43
20. - 22.	527	6.83
22. - 24.	517	6.70
24. - 26.	492	6.38
26. - 28.	337	4.37
28. - 30.	365	4.73
30. - 32.	252	3.27
32. - 34.	265	3.44
34. - 36.	178	2.31
36. - 38.	138	1.79
38. - 40.	48	.62
40. - 42.	80	1.04
42. - 44.	67	.87
44. - 46.	134	1.74
46. - 48.	189	2.45
48. - 50.	88	1.14
50. - 52.	10	.13
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	8	.10
600. - 800.	192	2.49
800. - 1000.	930	12.06
1000. - 1200.	301	3.90
1200. - 1400.	490	6.35
1400. - 1600.	835	10.83
1600. - 1800.	1137	14.74
1800. - 2000.	1081	14.02
2000. - 2200.	1004	13.02
2200. - 2400.	562	7.29
2400. - 2600.	383	4.97
2600. - 2800.	468	6.07
2800. - 3000.	260	3.37
3000. - 3200.	55	.71
3200. - 3400.	6	.08
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 20

1970 WHITE 30,000-lb GVW TRACTOR
WITH 400 CID I-6 ENGINE

TABLE F-89.
1970 WHITE 30000 LB. GVW TRACTOR WITH 400 CID I6, TRUCK 20 9/20/72 RUN 1
RUN DURATION 22.88 MIN. IDLE SPEED 600 RPM. IDLE VAC. 19.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
MV	2	12.7993	9.1279	.3513	675	25.0000	0.0000	25.0000
SPD	3	18.0952	11.6815	.4496	675	46.0000	0.0000	46.0000

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0 - 1	141	20.89
1 - 2	49	7.26
2 - 3	7	1.04
3 - 4	13	1.93
4 - 5	5	.74
5 - 6	8	1.19
6 - 7	12	1.78
7 - 8	10	1.48
8 - 9	7	1.04
9 - 10	9	1.33
10 - 11	6	.89
11 - 12	6	.89
12 - 13	17	2.52
13 - 14	16	2.37
14 - 15	9	1.33
15 - 16	16	2.37
16 - 17	15	2.22
17 - 18	49	7.26
18 - 19	63	9.33
19 - 20	18	2.67
20 - 21	13	1.93
21 - 22	24	3.56
22 - 23	59	8.74
23 - 24	73	10.81
24 - 25	28	4.15
25 - 26	2	.30
26 - 27	0	0.00
27 - 28	0	0.00
28 - 29	0	0.00
29 - 30	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0 - 2	74	10.96
2 - 4	14	2.07
4 - 6	14	2.07
6 - 8	28	4.15
8 - 10	41	6.07
10 - 12	61	9.04
12 - 14	45	6.67
14 - 16	35	5.19
16 - 18	25	3.70
18 - 20	40	5.93
20 - 22	45	6.67
22 - 24	51	7.56
24 - 26	34	5.04
26 - 28	38	5.63
28 - 30	40	5.93
30 - 32	18	2.67
32 - 34	3	.44
34 - 36	1	.15
36 - 38	9	1.33
38 - 40	14	2.07
40 - 42	14	2.07
42 - 44	18	2.67
44 - 46	11	1.63
46 - 48	2	.30
48 - 50	0	0.00
50 - 52	0	0.00
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

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TABLE F-90.
1970 WHITE 30000 LB. GVW TRACTOR WITH 400 CID I6, TRUCK 20 9/20/72 RUN 2
RUN DURATION 23.92 MIN. IDLE SPEED 600 RPM. IDLE VAC. 19.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
MV	2	12.9669	8.8193	.3402	672	24.8750	.2500	24.6250
BPD	8	17.8502	10.9330	.4218	672	41.6667	.3333	41.3333

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	121	18.01
1 -	2	37	5.51
2 -	3	15	2.23
3 -	4	14	2.08
4 -	5	11	1.64
5 -	6	11	1.64
6 -	7	14	2.08
7 -	8	8	1.19
8 -	9	7	1.04
9 -	10	13	1.93
10 -	11	13	1.93
11 -	12	17	2.53
12 -	13	12	1.79
13 -	14	18	2.68
14 -	15	11	1.64
15 -	16	9	1.34
16 -	17	18	2.68
17 -	18	31	4.61
18 -	19	86	12.80
19 -	20	13	1.93
20 -	21	15	2.23
21 -	22	25	3.72
22 -	23	55	8.18
23 -	24	76	11.31
24 -	25	22	3.27
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MB AT

LEVEL		COUNT	PERCENT
0 -	2	80	11.90
2 -	4	15	2.23
4 -	6	6	.89
6 -	8	32	4.76
8 -	10	36	5.36
10 -	12	49	7.29
12 -	14	45	6.70
14 -	16	30	4.46
16 -	18	33	4.91
18 -	20	34	5.05
20 -	22	46	6.85
22 -	24	49	7.29
24 -	26	50	7.44
26 -	28	45	6.70
28 -	30	40	5.95
30 -	32	19	2.83
32 -	34	12	1.79
34 -	36	11	1.64
36 -	38	6	.89
38 -	40	13	1.93
40 -	42	21	3.13
42 -	44	0	0.00
44 -	46	0	0.00
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

TABLE T-91.

1970 WHITE 30000 LB. GVW TRACTOR WITH 400 CID 16, TRUCK 20 9/20/72 RUN 3
RUN DURATION 22.10 MIN. IDLE SPEED 600 RPM. IDLE VAC. 19.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1681.3415	709.7151	28.6185	615	3675.0000	525.0000	3150.0000
MV	2	12.9902	8.9564	.3612	615	24.8750	.2500	24.6250
SPD	3	18.8271	13.3554	.5385	615	49.0000	.3333	48.6667

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0 - 1	93	15.12
1 - 2	63	10.24
2 - 3	11	1.79
3 - 4	19	3.09
4 - 5	4	.65
5 - 6	9	1.46
6 - 7	6	.98
7 - 8	14	2.28
8 - 9	10	1.63
9 - 10	6	.98
10 - 11	7	1.14
11 - 12	7	1.14
12 - 13	15	2.44
13 - 14	15	2.44
14 - 15	3	.49
15 - 16	10	1.63
16 - 17	9	1.46
17 - 18	20	3.25
18 - 19	97	15.77
19 - 20	17	2.76
20 - 21	24	3.90
21 - 22	15	2.44
22 - 23	52	8.46
23 - 24	67	10.89
24 - 25	22	3.58
25 - 26	0	0.00
26 - 27	0	0.00
27 - 28	0	0.00
28 - 29	0	0.00
29 - 30	0	0.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0 - 2	97	15.77
2 - 4	15	2.44
4 - 6	14	2.28
6 - 8	22	3.58
8 - 10	16	2.60
10 - 12	23	3.74
12 - 14	60	9.76
14 - 16	35	5.69
16 - 18	23	3.74
18 - 20	25	4.07
20 - 22	24	3.90
22 - 24	37	6.02
24 - 26	24	3.90
26 - 28	51	8.29
28 - 30	50	8.13
30 - 32	26	4.23
32 - 34	10	1.63
34 - 36	2	.33
36 - 38	0	0.00
38 - 40	2	.33
40 - 42	2	.33
42 - 44	5	.81
44 - 46	14	2.28
46 - 48	21	3.41
48 - 50	17	2.76
50 - 52	0	0.00
52 - 54	0	0.00
54 - 56	0	0.00
56 - 58	0	0.00
58 - 60	0	0.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0 - 200	0	0.00
200 - 400	0	0.00
400 - 600	1	.16
600 - 800	106	17.24
800 - 1000	25	4.07
1000 - 1200	27	4.39
1200 - 1400	46	7.48
1400 - 1600	59	9.59
1600 - 1800	81	13.17
1800 - 2000	106	17.24
2000 - 2200	42	6.83
2200 - 2400	18	2.93
2400 - 2600	16	2.60
2600 - 2800	16	2.60
2800 - 3000	34	5.53
3000 - 3200	33	5.37
3200 - 3400	4	.65
3400 - 3600	0	0.00
3600 - 3800	1	.16
3800 - 4000	0	0.00
4000 - 4200	0	0.00
4200 - 4400	0	0.00
4400 - 4600	0	0.00
4600 - 4800	0	0.00
4800 - 5000	0	0.00

TABLE F-92

1970 WHITE 30000 LB. GVW TRACTOR WITH 400 CID I6, TRUCK 20 9/20/72 RUN 4
RUN DURATION 23.41 MIN. IDLE SPEED 600 RPM. IDLE VAC. 19.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1676.8977	590.8394	22.9963	663	2950.0000	600.0000	2350.0000
MV	2	13.7004	7.7558	.3012	663	29.5000	1.3750	23.1250
SPD	3	17.5905	11.8807	.4614	663	45.3333	.3333	45.0000

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	0	0.00
1 -	2	21	3.17
2 -	3	38	5.73
3 -	4	61	9.20
4 -	5	22	3.32
5 -	6	31	4.68
6 -	7	23	3.47
7 -	8	22	3.32
8 -	9	24	3.62
9 -	10	9	1.36
10 -	11	17	2.56
11 -	12	13	1.96
12 -	13	16	2.41
13 -	14	12	1.81
14 -	15	7	1.06
15 -	16	13	1.96
16 -	17	8	1.21
17 -	18	23	3.47
18 -	19	90	13.57
19 -	20	27	4.07
20 -	21	17	2.56
21 -	22	23	3.47
22 -	23	64	9.65
23 -	24	69	10.41
24 -	25	13	1.96
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	98	14.78
2 -	4	16	2.41
4 -	6	18	2.71
6 -	8	18	2.71
8 -	10	21	3.17
10 -	12	51	7.69
12 -	14	51	7.69
14 -	16	36	5.43
16 -	18	26	3.92
18 -	20	49	7.39
20 -	22	49	7.39
22 -	24	38	5.73
24 -	26	29	4.37
26 -	28	25	3.77
28 -	30	47	7.09
30 -	32	13	1.96
32 -	34	13	1.96
34 -	36	7	1.06
36 -	38	11	1.66
38 -	40	5	.75
40 -	42	21	3.17
42 -	44	15	2.26
44 -	46	6	.90
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	0	0.00
600 -	800	100	15.08
800 -	1000	18	2.71
1000 -	1200	27	4.07
1200 -	1400	26	3.92
1400 -	1600	86	12.97
1600 -	1800	110	16.59
1800 -	2000	101	15.23
2000 -	2200	68	10.26
2200 -	2400	41	6.18
2400 -	2600	38	5.73
2600 -	2800	39	5.88
2800 -	3000	9	1.36
3000 -	3200	0	0.00
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE F-93.
1970 WHITE 30000 LB. GVW TRACTOR WITH 400 CID I6, TRUCK 20 9/20/72 RUN 7
RUN DURATION 20.93 MIN. IDLE SPEED 600 RPM. IDLE VAC. 19.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1797.3069	599.1291	24.5826	599	3000.0000	600.0000	2400.0000
MV	2	12.5370	7.9289	.3253	599	24.7500	.7500	24.0000
SPD	3	19.5938	12.1210	.9973	599	97.3333	0.0000	97.3333

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	2	.34
1 -	2	15	2.53
2 -	3	35	5.84
3 -	4	41	6.90
4 -	5	62	10.44
5 -	6	40	6.73
6 -	7	31	5.22
7 -	8	22	3.70
8 -	9	14	2.36
9 -	10	10	1.68
10 -	11	16	2.69
11 -	12	11	1.85
12 -	13	18	3.03
13 -	14	17	2.86
14 -	15	9	1.52
15 -	16	9	1.52
16 -	17	9	1.52
17 -	18	11	1.85
18 -	19	53	8.92
19 -	20	14	2.36
20 -	21	11	1.85
21 -	22	16	2.69
22 -	23	42	7.07
23 -	24	59	9.93
24 -	25	27	4.55
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MB AT

LEVEL		COUNT	PERCENT
0 -	2	45	7.58
2 -	4	17	2.86
4 -	6	15	2.53
6 -	8	23	3.87
8 -	10	28	4.71
10 -	12	38	6.40
12 -	14	44	7.41
14 -	16	37	6.23
16 -	18	31	5.22
18 -	20	43	7.24
20 -	22	44	7.41
22 -	24	34	5.72
24 -	26	33	5.56
26 -	28	19	3.20
28 -	30	23	3.87
30 -	32	31	5.22
32 -	34	17	2.86
34 -	36	8	1.35
36 -	38	1	.17
38 -	40	2	.34
40 -	42	20	3.37
42 -	44	16	2.69
44 -	46	9	1.52
46 -	48	16	2.69
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	0	0.00
600 -	800	60	10.10
800 -	1000	20	3.37
1000 -	1200	19	3.20
1200 -	1400	26	4.38
1400 -	1600	73	12.29
1600 -	1800	97	16.33
1800 -	2000	70	11.78
2000 -	2200	70	11.78
2200 -	2400	58	9.76
2400 -	2600	27	4.55
2600 -	2800	45	7.58
2800 -	3000	27	4.55
3000 -	3200	2	.34
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 21

1970 GMC 32, 500-lb GVW TRACTOR
WITH 427 CID V-8 ENGINE

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TABLE F-94.

1970 GMC 32500 LB GVW TRACTOR 427 CID V8 TRUCK 21 09/28/72 RUN 2

RUN DURATION 24.34 MIN. IDLE SPEED PPM. IDLE VAC. . IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1621.8220	589.8920	22.1695	708	3600.0000	500.0000	3100.0000
MV	2	12.3556	7.5960	.2836	708	23.5000	.2500	23.2500
SPD	3	16.8091	11.8767	.4464	708	43.3333	.3333	43.0000

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	54	7.63
1 -	2	63	8.90
2 -	3	33	4.66
3 -	4	20	2.82
4 -	5	26	3.67
5 -	6	11	1.55
6 -	7	17	2.40
7 -	8	17	2.40
8 -	9	15	2.12
9 -	10	4	.56
10 -	11	18	2.54
11 -	12	5	.71
12 -	13	11	1.55
13 -	14	13	1.84
14 -	15	20	2.82
15 -	16	41	5.79
16 -	17	53	7.49
17 -	18	69	9.75
18 -	19	60	8.47
19 -	20	51	7.20
20 -	21	35	4.94
21 -	22	37	5.23
22 -	23	32	4.52
23 -	24	3	.42
24 -	25	0	0.00
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	122	17.23
2 -	4	23	3.25
4 -	6	20	2.82
6 -	8	19	2.68
8 -	10	26	3.67
10 -	12	44	6.21
12 -	14	51	7.20
14 -	16	42	5.93
16 -	18	24	3.39
18 -	20	40	5.65
20 -	22	34	4.80
22 -	24	47	6.64
24 -	26	57	8.05
26 -	28	40	5.65
28 -	30	37	5.23
30 -	32	9	1.27
32 -	34	1	.14
34 -	36	4	.56
36 -	38	9	1.27
38 -	40	30	4.24
40 -	42	21	2.97
42 -	44	8	1.13
44 -	46	0	0.00
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	2	.28
600 -	800	62	8.76
800 -	1000	63	8.90
1000 -	1200	70	9.89
1200 -	1400	45	6.36
1400 -	1600	78	11.02
1600 -	1800	128	18.08
1800 -	2000	85	12.01
2000 -	2200	44	6.21
2200 -	2400	32	4.52
2400 -	2600	54	7.63
2600 -	2800	34	4.80
2800 -	3000	5	.71
3000 -	3200	2	.28
3200 -	3400	2	.28
3400 -	3600	1	.14
3600 -	3800	1	.14
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

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TABLE E-45.

1970 GMC 32500 LB GVW TRACTOR 427 CID V8 TRUCK 21 09/28/72 RUN 3
RUN DURATION 22.92 MIN. IDLE SPEED RPM. IDLE VAC. . IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1856.1286	773.3623	29.8999	669	4375.0000	550.0000	3825.0000
MV	2	12.6857	8.1772	.3161	669	23.5000	.1250	23.3750
SPD	3	17.5566	12.6657	.4897	669	50.6667	.3333	50.3333

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	46	6.88
1 -	2	89	13.30
2 -	3	34	5.08
3 -	4	22	3.29
4 -	5	16	2.39
5 -	6	9	1.35
6 -	7	6	.90
7 -	8	11	1.64
8 -	9	6	.90
9 -	10	5	.75
10 -	11	9	1.35
11 -	12	11	1.64
12 -	13	10	1.49
13 -	14	15	2.24
14 -	15	8	1.20
15 -	16	9	1.35
16 -	17	92	13.75
17 -	18	52	7.77
18 -	19	33	4.93
19 -	20	16	2.39
20 -	21	35	5.23
21 -	22	54	8.07
22 -	23	42	6.28
23 -	24	39	5.83
24 -	25	0	0.00
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	110	16.44
2 -	4	19	2.84
4 -	6	20	2.99
6 -	8	31	4.63
8 -	10	25	3.74
10 -	12	34	5.08
12 -	14	33	4.93
14 -	16	43	6.43
16 -	18	30	4.48
18 -	20	24	4.33
20 -	22	36	5.38
22 -	24	34	5.08
24 -	26	49	7.32
26 -	28	41	6.13
28 -	30	39	5.83
30 -	32	18	2.69
32 -	34	17	2.54
34 -	36	5	.75
36 -	38	6	.90
38 -	40	10	1.49
40 -	42	7	1.05
42 -	44	6	.90
44 -	46	7	1.05
46 -	48	8	1.20
48 -	50	6	.90
50 -	52	6	.90
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	1	.15
600 -	800	86	12.86
800 -	1000	43	6.43
1000 -	1200	29	4.33
1200 -	1400	38	5.68
1400 -	1600	44	6.58
1600 -	1800	63	9.42
1800 -	2000	70	10.46
2000 -	2200	78	11.66
2200 -	2400	46	6.88
2400 -	2600	48	7.17
2600 -	2800	35	5.23
2800 -	3000	30	4.48
3000 -	3200	24	3.59
3200 -	3400	24	3.59
3400 -	3600	3	.45
3600 -	3800	4	.60
3800 -	4000	0	0.00
4000 -	4200	1	.15
4200 -	4400	2	.30
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 22

1971 CHEVROLET 24,000 lb GVW
WITH 350 CID V-8 ENGINE

TABLE F-96.
1971 CHEVROLET C4000 LP GVW INC 350 CID V8 TRUCK 22 10/05/72 RUN 3
RUN DURATION 20.26 MIN IDLE SPEED 500 RPM IDLE VAC 19.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1970.4544	428.4681	8.4418	9640	4155.0000	365.0000	3790.0000
MV	2	1.2795	3.5266	.0868	9640	24.9750	.0000	24.9750
MS	3	24.4754	14.8602	.1509	9640	66.4000	.0000	66.4000
TP	4	.5198	.6356	.0065	9640	2.6000	.0000	2.6000

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	929	9.64
NOT	86	.89

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	339	14.07
2	173	7.18
3	417	17.30
4	1481	61.45
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	222	2.30
1. - 2.	710	7.37
2. - 3.	803	8.33
3. - 4.	580	6.02
4. - 5.	470	4.88
5. - 6.	344	3.57
6. - 7.	300	3.11
7. - 8.	204	2.12
8. - 9.	177	1.84
9. - 10.	153	1.59
10. - 11.	172	1.78
11. - 12.	147	1.52
12. - 13.	150	1.56
13. - 14.	141	1.46
14. - 15.	133	1.38
15. - 16.	135	1.40
16. - 17.	394	4.09
17. - 18.	626	6.49
18. - 19.	565	5.86
19. - 20.	281	2.91
20. - 21.	243	2.52
21. - 22.	338	3.49
22. - 23.	545	5.65
23. - 24.	1024	10.62
24. - 25.	741	7.61
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1086	11.27
2. - 4.	112	1.16
4. - 6.	132	1.37
6. - 8.	180	1.87
8. - 10.	267	2.77
10. - 12.	259	2.69
12. - 14.	265	2.76
14. - 16.	385	3.99
16. - 18.	357	3.70
18. - 20.	448	4.66
20. - 22.	445	4.62
22. - 24.	498	5.17
24. - 26.	614	6.37
26. - 28.	720	7.47
28. - 30.	633	6.57
30. - 32.	548	5.68
32. - 34.	507	5.26
34. - 36.	382	3.96
36. - 38.	272	2.82
38. - 40.	177	1.84
40. - 42.	142	1.47
42. - 44.	161	1.67
44. - 46.	221	2.29
46. - 48.	271	2.81
48. - 50.	129	1.34
50. - 52.	77	.80
52. - 54.	26	.27
54. - 56.	39	.40
56. - 58.	32	.33
58. - 60.	52	.54

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	287	2.98
600. - 800.	989	10.26
800. - 1000.	208	2.16
1000. - 1200.	238	2.47
1200. - 1400.	412	4.27
1400. - 1600.	800	8.30
1600. - 1800.	1090	11.31
1800. - 2000.	1196	12.41
2000. - 2200.	1032	10.71
2200. - 2400.	752	7.80
2400. - 2600.	668	6.93
2600. - 2800.	357	3.70
2800. - 3000.	362	3.76
3000. - 3200.	251	2.60
3200. - 3400.	278	2.88
3400. - 3600.	395	4.10
3600. - 3800.	200	2.07
3800. - 4000.	90	.93
4000. - 4200.	34	.35
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-97.

1971 CHEVROLET 24000 LB GVW THC 350 CID V8 TRUCK 22 10/05/72 RUN 4
RUN DURATION 22.47 MIN IDLE SPEED 500 RPM IDLE VAC 19.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	2072.4419	821.4485	8.0553	10400	4005.0000	395.0000	3610.0000
MV	2	14.6175	7.2301	.0709	10400	24.9750	.0000	24.9750
SPD	3	22.2109	13.5334	.1327	10400	66.1333	.0000	66.1333
TP	4	.2726	.3534	.0035	10400	1.6400	.0000	1.6400

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	1127	10.84
NOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	407	15.65
2	184	7.08
3	653	25.12
4	1355	52.12
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	238	2.29
1. - 2.	17	.16
2. - 3.	241	2.32
3. - 4.	426	4.10
4. - 5.	328	3.15
5. - 6.	393	3.78
6. - 7.	367	3.53
7. - 8.	426	4.10
8. - 9.	463	4.45
9. - 10.	411	3.95
10. - 11.	397	3.82
11. - 12.	341	3.28
12. - 13.	271	2.61
13. - 14.	269	2.59
14. - 15.	253	2.43
15. - 16.	457	4.39
16. - 17.	711	6.84
17. - 18.	755	7.26
18. - 19.	320	3.08
19. - 20.	236	2.27
20. - 21.	230	2.21
21. - 22.	327	3.14
22. - 23.	430	4.13
23. - 24.	1142	10.98
24. - 25.	951	9.14
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1216	11.69
2. - 4.	131	1.26
4. - 6.	156	1.50
6. - 8.	255	2.45
8. - 10.	310	2.98
10. - 12.	370	3.56
12. - 14.	384	3.69
14. - 16.	522	5.02
16. - 18.	487	4.68
18. - 20.	562	5.40
20. - 22.	557	5.36
22. - 24.	616	5.92
24. - 26.	688	6.62
26. - 28.	707	6.80
28. - 30.	817	7.86
30. - 32.	534	5.13
32. - 34.	362	3.48
34. - 36.	258	2.48
36. - 38.	243	2.34
38. - 40.	205	1.97
40. - 42.	139	1.34
42. - 44.	174	1.67
44. - 46.	256	2.46
46. - 48.	201	1.93
48. - 50.	69	.66
50. - 52.	27	.26
52. - 54.	15	.14
54. - 56.	22	.21
56. - 58.	20	.19
58. - 60.	33	.32

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	620	5.96
600. - 800.	765	7.36
800. - 1000.	154	1.48
1000. - 1200.	158	1.52
1200. - 1400.	221	2.12
1400. - 1600.	521	5.01
1600. - 1800.	865	8.32
1800. - 2000.	1117	10.74
2000. - 2200.	1383	13.30
2200. - 2400.	1100	10.58
2400. - 2600.	812	7.81
2600. - 2800.	675	6.49
2800. - 3000.	635	6.11
3000. - 3200.	420	4.04
3200. - 3400.	371	3.57
3400. - 3600.	430	4.13
3600. - 3800.	126	1.21
3800. - 4000.	35	.34
4000. - 4200.	1	.01
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-98.

1971 CHEVROLET 24000 LB GVW INC 350 CID V8 TRUCK 22 10/05/72 RUN 5

RUN DURATION 21.59 MIN IDLE SPEED 500 RPM IDLE VAC 19.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1898.5271	883.4698	8.0449	11520	4410.0000	440.0000	3970.0000
MV	2	14.7087	6.7940	.0633	11520	24.9750	.0000	24.9750
SPD	3	20.3977	15.2213	.1417	11520	66.2000	.0000	66.2000
TP	4	.2499	.3297	.0031	11520	1.7500	.0000	1.7500

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	1046	9.08
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	672	23.33
2	224	7.78
3	614	21.32
4	1367	47.47
5	1	.03
6	1	.03
7	1	.03

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	119	1.03
1. - 2.	74	.64
2. - 3.	171	1.48
3. - 4.	368	3.19
4. - 5.	543	4.71
5. - 6.	419	3.64
6. - 7.	428	3.72
7. - 8.	391	3.39
8. - 9.	460	3.99
9. - 10.	441	3.83
10. - 11.	404	3.51
11. - 12.	317	2.75
12. - 13.	264	2.29
13. - 14.	334	2.90
14. - 15.	415	3.60
15. - 16.	585	5.08
16. - 17.	719	6.24
17. - 18.	1234	10.71
18. - 19.	463	4.02
19. - 20.	291	2.53
20. - 21.	346	3.00
21. - 22.	372	3.23
22. - 23.	580	5.03
23. - 24.	1118	9.70
24. - 25.	664	5.76
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	2056	17.85
2. - 4.	187	1.62
4. - 6.	258	2.24
6. - 8.	403	3.50
8. - 10.	423	3.67
10. - 12.	443	3.85
12. - 14.	507	4.40
14. - 16.	491	4.26
16. - 18.	460	3.99
18. - 20.	471	4.09
20. - 22.	516	4.48
22. - 24.	637	5.53
24. - 26.	511	4.44
26. - 28.	628	5.45
28. - 30.	795	6.90
30. - 32.	508	4.41
32. - 34.	306	2.66
34. - 36.	237	2.06
36. - 38.	232	2.01
38. - 40.	211	1.83
40. - 42.	74	.64
42. - 44.	143	1.24
44. - 46.	234	2.03
46. - 48.	306	2.66
48. - 50.	117	1.02
50. - 52.	49	.43
52. - 54.	19	.16
54. - 56.	22	.19
56. - 58.	51	.44
58. - 60.	55	.48

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	515	4.47
600. - 800.	1599	13.88
800. - 1000.	322	2.80
1000. - 1200.	260	2.26
1200. - 1400.	457	3.97
1400. - 1600.	747	6.48
1600. - 1800.	1149	9.97
1800. - 2000.	1257	10.91
2000. - 2200.	1194	10.36
2200. - 2400.	1041	9.04
2400. - 2600.	614	5.33
2600. - 2800.	485	4.21
2800. - 3000.	493	4.28
3000. - 3200.	350	3.04
3200. - 3400.	301	2.61
3400. - 3600.	441	3.83
3600. - 3800.	256	2.22
3800. - 4000.	17	.15
4000. - 4200.	19	.16
4200. - 4400.	2	.02
4400. - 4600.	1	.01
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-99.

1971 CHEVROLET 24000 LB GVW IHC 350 CID V8 TRUCK 22 10/05/72 RUN 6
RUN DURATION 21.59 MIN IDLE SPEED 500 RPM IDLE VAC 19.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	2038.1831	869.9043	8.2523	11112	3920.0000	475.0000	3445.0000
MV	2	14.7363	7.1828	.0681	11112	24.9750	.0000	24.9750
SPD	3	20.7256	14.7370	.1398	11112	66.5333	.0000	66.5333
TP	4	.2901	.3921	.0037	11112	1.5800	.0000	1.5800

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	1071	9.64
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	590	21.24
2	167	6.01
3	784	28.22
4	1235	44.46
5	0	.00
6	0	.0
7	2	.07

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	157	1.41
1. - 2.	52	.47
2. - 3.	310	2.79
3. - 4.	455	4.09
4. - 5.	442	3.98
5. - 6.	527	4.74
6. - 7.	432	3.89
7. - 8.	418	3.76
8. - 9.	347	3.12
9. - 10.	300	2.70
10. - 11.	305	2.74
11. - 12.	281	2.53
12. - 13.	297	2.67
13. - 14.	281	2.53
14. - 15.	352	3.17
15. - 16.	272	2.45
16. - 17.	375	3.37
17. - 18.	1354	12.19
18. - 19.	747	6.72
19. - 20.	270	2.43
20. - 21.	235	2.11
21. - 22.	323	2.91
22. - 23.	570	5.13
23. - 24.	1266	11.39
24. - 25.	744	6.70
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME WS AT

LEVEL	COUNT	PERCENT
0. - 2.	1806	16.25
2. - 4.	212	1.91
4. - 6.	259	2.33
6. - 8.	352	3.17
8. - 10.	263	2.37
10. - 12.	307	2.76
12. - 14.	511	4.60
14. - 16.	610	5.49
16. - 18.	608	5.47
18. - 20.	673	6.06
20. - 22.	588	5.29
22. - 24.	472	4.25
24. - 26.	519	4.67
26. - 28.	577	5.19
28. - 30.	497	4.47
30. - 32.	393	3.54
32. - 34.	345	3.55
34. - 36.	355	3.19
36. - 38.	225	2.02
38. - 40.	202	1.82
40. - 42.	256	2.27
42. - 44.	197	1.77
44. - 46.	282	2.54
46. - 48.	158	1.42
48. - 50.	98	.88
50. - 52.	41	.37
52. - 54.	33	.30
54. - 56.	31	.28
56. - 58.	42	.38
58. - 60.	51	.46

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	160	1.44
600. - 800.	1760	15.84
800. - 1000.	292	2.63
1000. - 1200.	211	1.90
1200. - 1400.	279	2.51
1400. - 1600.	461	4.15
1600. - 1800.	739	6.65
1800. - 2000.	883	7.95
2000. - 2200.	1306	11.75
2200. - 2400.	1119	10.07
2400. - 2600.	947	8.52
2600. - 2800.	777	6.99
2800. - 3000.	536	4.82
3000. - 3200.	493	4.44
3200. - 3400.	445	4.00
3400. - 3600.	443	3.99
3600. - 3800.	205	1.84
3800. - 4000.	56	.50
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-100.
1971 CHEVROLET 24000 LB GVW TMC 350 CID V8 TRUCK 22 10/05/72 RUN 7
RUN DURATION 19.92 MIN IDLE SPEED 500 RPM IDLE VAC 19.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	2017.1564	569.1305	5.0558	11640	4120.0000	435.0000	3685.0000
MV	2	14.4733	7.4953	.0695	11640	24.9750	.0000	24.9750
SPD	3	20.6269	14.5007	.1344	11640	63.8000	.0000	63.8000
TP	4	.2993	.4073	.0038	11640	1.8900	.0000	1.8900

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	1005	8.63
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	435	14.95
2	120	4.12
3	670	23.02
4	1334	45.84
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	166	1.43
1. - 2.	199	1.71
2. - 3.	464	3.99
3. - 4.	633	5.44
4. - 5.	440	3.78
5. - 6.	397	3.41
6. - 7.	507	4.36
7. - 8.	402	3.45
8. - 9.	321	2.76
9. - 10.	265	2.28
10. - 11.	290	2.49
11. - 12.	359	3.08
12. - 13.	281	2.41
13. - 14.	244	2.10
14. - 15.	281	2.41
15. - 16.	341	2.93
16. - 17.	489	4.20
17. - 18.	1127	9.68
18. - 19.	655	5.63
19. - 20.	314	2.67
20. - 21.	300	2.58
21. - 22.	287	2.47
22. - 23.	720	6.19
23. - 24.	1519	13.05
24. - 25.	619	5.32
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0. - 2.	1998	17.16
2. - 4.	171	1.47
4. - 6.	334	2.87
6. - 8.	321	2.76
8. - 10.	308	2.65
10. - 12.	355	3.05
12. - 14.	493	4.24
14. - 16.	513	4.41
16. - 18.	587	5.04
18. - 20.	645	5.54
20. - 22.	503	4.32
22. - 24.	558	4.79
24. - 26.	528	4.54
26. - 28.	640	5.50
28. - 30.	570	4.90
30. - 32.	561	4.82
32. - 34.	375	3.22
34. - 36.	273	2.35
36. - 38.	321	2.76
38. - 40.	347	2.98
40. - 42.	404	3.47
42. - 44.	215	1.85
44. - 46.	224	1.92
46. - 48.	129	1.11
48. - 50.	82	.70
50. - 52.	48	.41
52. - 54.	37	.32
54. - 56.	24	.21
56. - 58.	21	.18
58. - 60.	38	.33

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	207	1.78
600. - 800.	1523	13.08
800. - 1000.	470	4.04
1000. - 1200.	321	2.76
1200. - 1400.	445	3.82
1400. - 1600.	677	5.82
1600. - 1800.	847	7.28
1800. - 2000.	1015	8.72
2000. - 2200.	1102	9.47
2200. - 2400.	984	8.45
2400. - 2600.	1045	8.98
2600. - 2800.	619	5.32
2800. - 3000.	635	5.46
3000. - 3200.	529	4.54
3200. - 3400.	501	4.30
3400. - 3600.	429	3.69
3600. - 3800.	203	1.74
3800. - 4000.	77	.66
4000. - 4200.	11	.09
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-101.
1971 CHEVROLET 24000 LB GVW INC 350 CID V8 TRUCK 22 10/05/72 RUN 8
RUN DURATION 19.04 MIN IDLE SPEED 500 RPM IDLE VAC 19.5 INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	2050.9380	810.2987	8.1936	9780	4565.0000	400.0000	4165.0000
MV	2	14.0721	7.8997	.0799	9780	24.9750	.0000	24.9750
SPD	3	23.9234	14.7832	.1495	9780	66.3333	.0000	66.3333
TP	4	.3481	.4345	.0044	9780	2.0000	.0000	2.0000

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	948	9.69
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	440	18.00
2	192	7.85
3	406	16.61
4	1407	57.55
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	134	1.37
1. - 2.	201	2.06
2. - 3.	595	6.08
3. - 4.	595	6.08
4. - 5.	428	4.38
5. - 6.	364	3.72
6. - 7.	404	4.13
7. - 8.	408	4.17
8. - 9.	291	2.98
9. - 10.	248	2.54
10. - 11.	200	2.04
11. - 12.	212	2.17
12. - 13.	196	2.00
13. - 14.	179	1.83
14. - 15.	197	2.01
15. - 16.	209	2.14
16. - 17.	285	2.91
17. - 18.	936	9.57
18. - 19.	379	3.88
19. - 20.	191	1.95
20. - 21.	197	2.01
21. - 22.	382	3.91
22. - 23.	700	7.16
23. - 24.	1216	12.43
24. - 25.	633	6.47
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1037	10.60
2. - 4.	190	1.94
4. - 6.	277	2.83
6. - 8.	211	2.16
8. - 10.	183	1.87
10. - 12.	299	3.06
12. - 14.	350	3.58
14. - 16.	394	4.03
16. - 18.	446	4.56
18. - 20.	408	4.17
20. - 22.	444	4.54
22. - 24.	537	5.49
24. - 26.	542	5.54
26. - 28.	704	7.20
28. - 30.	559	5.72
30. - 32.	418	4.27
32. - 34.	436	4.46
34. - 36.	404	4.13
36. - 38.	303	3.10
38. - 40.	219	2.24
40. - 42.	178	1.82
42. - 44.	262	2.68
44. - 46.	246	2.52
46. - 48.	237	2.42
48. - 50.	134	1.37
50. - 52.	60	.61
52. - 54.	35	.36
54. - 56.	32	.33
56. - 58.	53	.54
58. - 60.	68	.70

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	145	1.48
600. - 800.	978	10.00
800. - 1000.	223	2.28
1000. - 1200.	209	2.14
1200. - 1400.	414	4.23
1400. - 1600.	622	6.36
1600. - 1800.	893	9.13
1800. - 2000.	1124	11.49
2000. - 2200.	1208	12.35
2200. - 2400.	951	9.72
2400. - 2600.	518	5.30
2600. - 2800.	695	7.11
2800. - 3000.	505	5.16
3000. - 3200.	369	3.77
3200. - 3400.	292	2.99
3400. - 3600.	296	3.03
3600. - 3800.	263	2.69
3800. - 4000.	70	.72
4000. - 4200.	4	.04
4200. - 4400.	0	.00
4400. - 4600.	1	.01
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S.A.R.R. TRUCK 23

1969 DODGE 16,000 lb GVW VAN
WITH 318 CID V-8 ENGINE

TABLE F-102.

1969 DODGE 16000 LB GVW VAN, 318 CID V8 TRUCK 23 10/16/72 RUN 4

RUN DURATION 21.59 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1969.4832	667.5856	6.3410	11084	4185.0000	370.0000	3815.0000
MV	2	13.3564	8.6333	.0820	11084	24.5500	.3000	24.2500
SPD	3	18.5708	13.1402	.1248	11084	51.0667	.0000	51.0667
TP	4	3.3437	1.1571	.0110	11084	6.3200	2.1400	4.1800

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	4394	39.64
NOT	393	3.55

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	773	27.90
3	658	23.75
4	1340	48.36
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT LEVEL	COUNT	PERCENT
< . - 1.	295	2.66
1. - 2.	1895	17.10
2. - 3.	523	4.72
3. - 4.	380	3.43
4. - 5.	231	2.08
5. - 6.	245	2.21
6. - 7.	222	2.00
7. - 8.	210	1.89
8. - 9.	173	1.56
9. - 10.	130	1.17
10. - 11.	111	1.00
11. - 12.	124	1.12
12. - 13.	153	1.38
13. - 14.	159	1.43
14. - 15.	145	1.31
15. - 16.	125	1.13
16. - 17.	459	4.14
17. - 18.	314	2.83
18. - 19.	324	2.92
19. - 20.	405	3.65
20. - 21.	2027	18.29
21. - 22.	746	6.73
22. - 23.	743	6.70
23. - 24.	794	7.16
24. - 25.	151	1.36
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT LEVEL	COUNT	PERCENT
< . - 2.	2012	18.15
2. - 4.	324	2.92
4. - 6.	203	1.83
6. - 8.	258	2.33
8. - 10.	240	2.17
10. - 12.	339	3.06
12. - 14.	499	4.50
14. - 16.	736	6.64
16. - 18.	777	7.01
18. - 20.	583	5.26
20. - 22.	573	5.17
22. - 24.	695	6.27
24. - 26.	815	7.35
26. - 28.	697	6.29
28. - 30.	478	4.31
30. - 32.	479	4.32
32. - 34.	245	2.21
34. - 36.	32	.29
36. - 38.	30	.27
38. - 40.	112	1.01
40. - 42.	112	1.01
42. - 44.	125	1.13
44. - 46.	343	3.09
46. - 48.	257	2.32
48. - 50.	95	.86
50. - 52.	25	.23
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT LEVEL	COUNT	PERCENT
< . - 200.	0	.00
200. - 400.	2	.02
400. - 600.	10	.09
600. - 800.	168	1.52
800. - 1000.	420	3.79
1000. - 1200.	528	4.76
1200. - 1400.	1427	12.87
1400. - 1600.	1012	9.13
1600. - 1800.	1478	13.33
1800. - 2000.	1261	11.38
2000. - 2200.	1150	10.38
2200. - 2400.	736	6.64
2400. - 2600.	655	5.91
2600. - 2800.	578	5.21
2800. - 3000.	568	5.12
3000. - 3200.	622	5.61
3200. - 3400.	344	3.10
3400. - 3600.	72	.65
3600. - 3800.	33	.30
3800. - 4000.	13	.12
4000. - 4200.	7	.06
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-103.
1969 DODGE 16000 LB GVW VAN 318 CID V8 TRUCK #3 10/16/72 RUN 5
RUN DURATION 22.25 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1882.4548	687.4775	6.4718	11284	4170.0000	380.0000	3790.0000
MV	2	13.7461	8.2966	.0781	11284	24.2500	.3250	23.9250
SPD	3	18.1785	14.1095	.1328	11284	51.2000	.0000	51.2000
TP	4	3.2814	1.1244	.0106	11284	6.1700	2.1500	4.0200

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4740	42.01
NOT	78	.69

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	932	33.04
3	621	22.01
4	1266	44.88
5	2	.07
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	444	3.93
1. - 2.	1252	11.10
2. - 3.	724	6.42
3. - 4.	428	3.79
4. - 5.	254	2.25
5. - 6.	171	1.52
6. - 7.	198	1.75
7. - 8.	182	1.61
8. - 9.	155	1.37
9. - 10.	173	1.53
10. - 11.	181	1.60
11. - 12.	188	1.67
12. - 13.	209	1.85
13. - 14.	174	1.54
14. - 15.	142	1.26
15. - 16.	161	1.43
16. - 17.	527	4.67
17. - 18.	260	2.30
18. - 19.	334	2.96
19. - 20.	400	3.54
20. - 21.	2425	21.49
21. - 22.	915	8.11
22. - 23.	778	6.89
23. - 24.	553	4.90
24. - 25.	56	.50
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0. - 2.	2393	21.21
2. - 4.	391	3.47
4. - 6.	325	2.88
6. - 8.	317	2.81
8. - 10.	298	2.64
10. - 12.	372	3.30
12. - 14.	422	3.74
14. - 16.	541	4.97
16. - 18.	545	4.83
18. - 20.	433	3.84
20. - 22.	650	5.76
22. - 24.	670	5.94
24. - 26.	588	5.21
26. - 28.	507	4.49
28. - 30.	268	2.38
30. - 32.	786	6.97
32. - 34.	480	4.25
34. - 36.	214	1.90
36. - 38.	45	.40
38. - 40.	23	.20
40. - 42.	38	.34
42. - 44.	141	1.25
44. - 46.	227	2.01
46. - 48.	328	2.91
48. - 50.	251	2.22
50. - 52.	11	.10
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	1	.01
400. - 600.	20	.18
600. - 800.	253	2.24
800. - 1000.	352	3.12
1000. - 1200.	1271	11.26
1200. - 1400.	1471	13.04
1400. - 1600.	1156	10.24
1600. - 1800.	1233	10.93
1800. - 2000.	879	7.79
2000. - 2200.	1420	12.58
2200. - 2400.	921	8.16
2400. - 2600.	403	3.57
2600. - 2800.	321	2.84
2800. - 3000.	493	4.37
3000. - 3200.	642	5.69
3200. - 3400.	224	1.99
3400. - 3600.	141	1.25
3600. - 3800.	65	.58
3800. - 4000.	13	.12
4000. - 4200.	5	.04
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-104.

1969 DODGE 10000 A OVW VAN 318 CID V8 TRUCK 23 10/16/72 RUN 6

RUN DURATION 21.12 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1957.5958	667.8016	6.4271	10796	4015.0000	460.0000	3555.0000
MV	2	12.6871	8.6984	.0837	10796	24.1250	.0750	24.0500
SPD	3	18.9793	12.8290	.1235	10796	44.6667	.0000	44.6667
TP	4	3.4505	1.2376	.0119	10796	8.1100	2.1500	3.9600

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4185	38.76
WOT	115	1.07

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	2	.01
2	728	26.97
3	851	31.53
4	1118	41.42
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	672	6.22
1. - 2.	1605	14.87
2. - 3.	637	5.90
3. - 4.	379	3.51
4. - 5.	305	2.83
5. - 6.	219	2.03
6. - 7.	214	1.98
7. - 8.	186	1.72
8. - 9.	140	1.30
9. - 10.	148	1.37
10. - 11.	149	1.38
11. - 12.	120	1.11
12. - 13.	117	1.08
13. - 14.	142	1.32
14. - 15.	150	1.39
15. - 16.	164	1.52
16. - 17.	350	3.24
17. - 18.	182	1.69
18. - 19.	527	4.88
19. - 20.	414	3.83
20. - 21.	1720	15.93
21. - 22.	782	7.06
22. - 23.	973	9.01
23. - 24.	516	4.78
24. - 25.	5	.05
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1897	17.57
2. - 4.	239	2.21
4. - 6.	266	2.46
6. - 8.	227	2.10
8. - 10.	213	1.97
10. - 12.	327	3.03
12. - 14.	475	4.40
14. - 16.	679	6.29
16. - 18.	863	7.99
18. - 20.	606	5.61
20. - 22.	414	3.83
22. - 24.	368	3.41
24. - 26.	601	5.57
26. - 28.	778	7.21
28. - 30.	599	5.55
30. - 32.	561	5.20
32. - 34.	337	3.12
34. - 36.	169	1.57
36. - 38.	164	1.52
38. - 40.	291	2.70
40. - 42.	292	2.70
42. - 44.	356	3.30
44. - 46.	71	.66
46. - 48.	3	.03
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	5	.05
600. - 800.	279	2.58
800. - 1000.	405	3.75
1000. - 1200.	686	6.35
1200. - 1400.	1264	11.71
1400. - 1600.	772	7.15
1600. - 1800.	1118	10.36
1800. - 2000.	1499	13.88
2000. - 2200.	1177	10.90
2200. - 2400.	780	7.22
2400. - 2600.	641	5.94
2600. - 2800.	806	7.47
2800. - 3000.	745	6.90
3000. - 3200.	206	1.91
3200. - 3400.	116	1.07
3400. - 3600.	160	1.48
3600. - 3800.	105	.97
3800. - 4000.	31	.29
4000. - 4200.	1	.01
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE E-105.
1969 DODGE 18000 LB GVW VAN 318 CID V8 TRUCK 23 10/16/72 RUN 7
RUN DURATION 20.75 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1998.2556	744.6370	7.2539	10532	4435.0000	265.0000	4170.0000
MV	2	12.2220	8.6039	.0838	10532	24.0250	.0000	24.0250
SPD	3	14.1851	13.9916	.1363	10532	50.5333	.0000	50.5333
TP	4	3.6548	1.1923	.0116	10532	6.8100	2.2100	4.6000

PERCENT OF TIME THROTTLE POSITION AT LEVEL	COUNT	PERCENT
CLOSED	3821	36.28
NOT	285	2.71

PERCENT OF TIME GEAR SHIFT POSITION AT GEAR	COUNT	PERCENT
1	0	.00
2	804	38.54
3	653	24.80
4	1168	44.36
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	779	7.40
1. - 2.	1286	12.21
2. - 3.	967	9.18
3. - 4.	398	3.78
4. - 5.	388	2.66
5. - 6.	210	1.99
6. - 7.	226	2.15
7. - 8.	142	1.35
8. - 9.	155	1.47
9. - 10.	150	1.42
10. - 11.	132	1.25
11. - 12.	186	1.77
12. - 13.	169	1.60
13. - 14.	124	1.18
14. - 15.	160	1.52
15. - 16.	138	1.31
16. - 17.	148	1.41
17. - 18.	184	1.75
18. - 19.	325	3.09
19. - 20.	558	5.30
20. - 21.	2421	22.99
21. - 22.	611	5.80
22. - 23.	496	4.71
23. - 24.	283	2.69
24. - 25.	4	.04
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1898	18.02
2. - 4.	244	2.32
4. - 6.	238	2.26
6. - 8.	286	2.72
8. - 10.	304	2.89
10. - 12.	355	3.37
12. - 14.	548	5.20
14. - 16.	495	4.70
16. - 18.	482	4.58
18. - 20.	494	4.69
20. - 22.	552	5.24
22. - 24.	572	5.43
24. - 26.	780	7.41
26. - 28.	718	6.82
28. - 30.	416	3.95
30. - 32.	381	3.62
32. - 34.	342	3.25
34. - 36.	147	1.41
36. - 38.	179	1.70
38. - 40.	99	.94
40. - 42.	55	.52
42. - 44.	108	1.03
44. - 46.	133	1.26
46. - 48.	408	3.87
48. - 50.	306	2.91
50. - 52.	12	.11
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	6	.06
400. - 600.	20	.19
600. - 800.	39	.37
800. - 1000.	164	1.56
1000. - 1200.	628	5.96
1200. - 1400.	1608	15.19
1400. - 1600.	1635	15.52
1600. - 1800.	1190	11.30
1800. - 2000.	1040	9.87
2000. - 2200.	807	7.66
2200. - 2400.	637	6.05
2400. - 2600.	525	4.98
2600. - 2800.	380	3.61
2800. - 3000.	357	3.39
3000. - 3200.	442	4.20
3200. - 3400.	644	6.11
3400. - 3600.	99	.94
3600. - 3800.	81	.77
3800. - 4000.	88	.84
4000. - 4200.	109	1.03
4200. - 4400.	38	.36
4400. - 4600.	3	.03
4600. - 4800.	0	.00
4800. - 5000.	0	.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 24

1970 CHEVROLET 32,000-lb GVW STAKE
WITH 366 CID V-8 ENGINE

TABLE F-106.

1970 CHEVROLET 32000 LB. GVW STAKE WITH 366 CID V8, TRUCK 29 10/23/72 RUN 1
RUN DURATION 22.32 MIN. IDLE SPEED 500 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1607.7992	695.7157	27.9577	692	3000.0000	475.0000	2525.0000
MV	2	14.1927	6.6573	.2627	642	24.3750	1.1250	23.2500
SPD	3	16.6895	12.8239	.5061	692	43.3333	.3333	43.0000

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	0	0.00
1 -	2	23	3.58
2 -	3	15	2.34
3 -	4	10	1.56
4 -	5	24	3.74
5 -	6	18	2.80
6 -	7	18	2.80
7 -	8	29	4.52
8 -	9	29	4.52
9 -	10	28	4.36
10 -	11	27	4.21
11 -	12	20	3.12
12 -	13	30	4.67
13 -	14	19	2.96
14 -	15	16	2.49
15 -	16	21	3.27
16 -	17	104	16.98
17 -	18	32	4.98
18 -	19	15	2.34
19 -	20	11	1.71
20 -	21	9	1.40
21 -	22	13	2.02
22 -	23	32	4.98
23 -	24	68	10.59
24 -	25	24	4.05
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	40	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	164	25.55
2 -	4	8	1.26
4 -	6	11	1.71
6 -	8	12	1.87
8 -	10	21	3.27
10 -	12	30	4.67
12 -	14	21	3.27
14 -	16	25	3.89
16 -	18	39	6.07
18 -	20	33	5.14
20 -	22	29	4.52
22 -	24	45	7.01
24 -	26	47	7.32
26 -	28	30	4.67
28 -	30	37	5.76
30 -	32	19	2.96
32 -	34	1	.16
34 -	36	5	.78
36 -	38	14	2.18
38 -	40	19	2.96
40 -	42	13	2.02
42 -	44	19	2.96
44 -	46	0	0.00
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	108	16.82
600 -	800	13	2.02
800 -	1000	15	2.34
1000 -	1200	29	4.52
1200 -	1400	40	6.23
1400 -	1600	73	11.37
1600 -	1800	93	14.49
1800 -	2000	93	14.49
2000 -	2200	47	7.32
2200 -	2400	30	4.67
2400 -	2600	39	6.07
2600 -	2800	37	5.76
2800 -	3000	24	3.74
3000 -	3200	1	.16
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

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TABLE F-107.
1970 CHEVROLET 32000 LB. GVW STAKE WITH 366 CID V8, TRUCK 29 10/23/72 RUN 3
RUN DURATION 23.75 MIN. IDLE SPEED 500 RPM. IDLE VAC. 16. IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1550.3333	744.7821	28.1259	705	3950.0000	950.0000	3000.0000
MV	2	19.1709	7.3401	.2769	705	29.5000	.8750	23.6250
SPD	3	16.5608	13.2092	.4973	705	52.0000	0.0000	52.0000

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	3	.43
1 -	2	45	6.38
2 -	3	27	3.83
3 -	4	15	2.13
4 -	5	25	3.55
5 -	6	27	3.83
6 -	7	23	3.26
7 -	8	18	2.55
8 -	9	25	3.55
9 -	10	17	2.41
10 -	11	16	2.27
11 -	12	12	1.70
12 -	13	19	2.70
13 -	14	20	2.84
14 -	15	8	1.13
15 -	16	19	2.70
16 -	17	95	13.48
17 -	18	62	8.79
18 -	19	27	3.83
19 -	20	10	1.42
20 -	21	21	2.98
21 -	22	22	3.12
22 -	23	46	6.52
23 -	24	76	10.78
24 -	25	27	3.83
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MB AT

LEVEL		COUNT	PERCENT
0 -	2	139	19.72
2 -	4	36	5.11
4 -	6	22	3.12
6 -	8	19	2.70
8 -	10	39	5.53
10 -	12	37	5.25
12 -	14	25	3.55
14 -	16	28	3.97
16 -	18	33	4.68
18 -	20	38	5.39
20 -	22	44	6.24
22 -	24	38	5.39
24 -	26	47	6.67
26 -	28	38	5.39
28 -	30	27	3.83
30 -	32	20	2.84
32 -	34	9	1.28
34 -	36	5	.71
36 -	38	3	.43
38 -	40	8	1.13
40 -	42	6	.85
42 -	44	7	.99
44 -	46	8	1.13
46 -	48	18	2.55
48 -	50	4	.57
50 -	52	6	.85
52 -	54	1	.14
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	133	18.87
600 -	800	14	1.99
800 -	1000	43	6.10
1000 -	1200	43	6.10
1200 -	1400	35	4.96
1400 -	1600	66	9.36
1600 -	1800	92	13.05
1800 -	2000	92	13.05
2000 -	2200	62	8.79
2200 -	2400	38	5.39
2400 -	2600	25	3.55
2600 -	2800	12	1.70
2800 -	3000	15	2.13
3000 -	3200	24	3.40
3200 -	3400	8	1.13
3400 -	3600	3	.43
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE E-108.

1970 CHEVROLET 32000 LB. GVW STAKE WITH 366 CID V8, TRUCK 24 10/23/72 RUN 4
RUN DURATION 20.71 MIN. IDLE SPEED 500 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1817.1732	893.2795	36.0879	612	3800.0000	475.0000	3325.0000
MV	2	13.7697	7.1353	.2884	612	24.5000	1.2500	23.2500
SPD	3	18.8224	12.8880	.5210	612	98.3333	.3333	98.0000

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	0	0.00
1 -	2	36	5.88
2 -	3	15	2.45
3 -	4	21	3.43
4 -	5	22	3.59
5 -	6	22	3.59
6 -	7	22	3.59
7 -	8	29	4.74
8 -	9	21	3.43
9 -	10	20	3.27
10 -	11	22	3.59
11 -	12	10	1.63
12 -	13	15	2.45
13 -	14	10	1.63
14 -	15	12	1.96
15 -	16	34	5.56
16 -	17	65	10.62
17 -	18	74	12.09
18 -	19	11	1.80
19 -	20	14	2.29
20 -	21	11	1.80
21 -	22	13	2.12
22 -	23	20	3.27
23 -	24	49	8.01
24 -	25	44	7.19
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	109	17.81
2 -	4	10	1.63
4 -	6	9	1.47
6 -	8	12	1.96
8 -	10	21	3.43
10 -	12	24	3.92
12 -	14	29	4.74
14 -	16	34	5.56
16 -	18	43	7.03
18 -	20	33	5.39
20 -	22	41	6.70
22 -	24	39	6.37
24 -	26	25	4.08
26 -	28	18	2.94
28 -	30	27	4.41
30 -	32	26	4.25
32 -	34	40	6.54
34 -	36	6	.98
36 -	38	14	2.29
38 -	40	17	2.78
40 -	42	8	1.31
42 -	44	6	.98
44 -	46	11	1.80
46 -	48	8	1.31
48 -	50	2	.33
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	123	20.10
600 -	800	12	1.96
800 -	1000	4	.65
1000 -	1200	16	2.61
1200 -	1400	19	3.10
1400 -	1600	30	4.90
1600 -	1800	44	7.19
1800 -	2000	54	8.82
2000 -	2200	70	11.44
2200 -	2400	92	15.03
2400 -	2600	42	6.86
2600 -	2800	31	5.07
2800 -	3000	26	4.25
3000 -	3200	26	4.25
3200 -	3400	18	2.94
3400 -	3600	3	.49
3600 -	3800	1	.16
3800 -	4000	1	.16
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE F-105.

1970 CHEVROLET 32000 LB. GVW STAKE WITH 366 CID V8, TRUCK 29 10/23/72 RUN 5
RUN DURATION 23.19 MIN. IDLE SPEED 500 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1782.1272	868.2191	33.1972	684	3550.0000	450.0000	3100.0000
MV	2	14.9937	6.2055	.2373	684	29.3750	1.2500	23.1250
SPD	3	16.7998	12.5989	.4817	684	98.0000	.6667	97.3333

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	0	0.00
1 -	2	18	2.63
2 -	3	10	1.46
3 -	4	23	3.36
4 -	5	19	2.78
5 -	6	14	2.05
6 -	7	19	2.78
7 -	8	27	3.95
8 -	9	33	4.82
9 -	10	15	2.19
10 -	11	31	4.53
11 -	12	15	2.19
12 -	13	14	2.05
13 -	14	26	3.80
14 -	15	16	2.34
15 -	16	36	5.26
16 -	17	78	11.40
17 -	18	111	16.23
18 -	19	25	3.65
19 -	20	22	3.22
20 -	21	27	3.95
21 -	22	16	2.34
22 -	23	21	3.07
23 -	24	50	7.31
24 -	25	18	2.63
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MB AT

LEVEL		COUNT	PERCENT
0 -	2	110	16.08
2 -	4	16	2.34
4 -	6	20	2.92
6 -	8	24	3.51
8 -	10	38	5.56
10 -	12	49	7.16
12 -	14	54	7.89
14 -	16	31	4.53
16 -	18	44	6.43
18 -	20	49	7.16
20 -	22	44	6.43
22 -	24	50	7.31
24 -	26	25	3.65
26 -	28	24	3.51
28 -	30	15	2.19
30 -	32	13	1.90
32 -	34	8	1.17
34 -	36	7	1.02
36 -	38	2	.29
38 -	40	2	.29
40 -	42	3	.44
42 -	44	7	1.02
44 -	46	14	2.05
46 -	48	32	4.68
48 -	50	3	.44
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	140	20.47
600 -	800	19	2.78
800 -	1000	7	1.02
1000 -	1200	18	2.63
1200 -	1400	25	3.65
1400 -	1600	47	6.87
1600 -	1800	64	9.36
1800 -	2000	62	9.06
2000 -	2200	78	11.40
2200 -	2400	44	6.43
2400 -	2600	48	7.02
2600 -	2800	33	4.82
2800 -	3000	23	3.36
3000 -	3200	38	5.56
3200 -	3400	31	4.53
3400 -	3600	7	1.02
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

TABLE F-110.
1970 CHEVROLET 32000 LB GVW STAKE WITH 366 CID V8, TRUCK 24 10/23/72 RUN 6
RUN DURATION 21.01 MIN. IDLE SPEED 500 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	2005.3069	923.3977	35.6987	669	4650.0000	350.0000	4300.0000
MV	2	13.2579	7.2504	.2803	669	24.3750	.5000	23.8750
SPD	3	18.8560	13.1192	.5072	669	50.0000	.3333	49.6667

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	2	.30
1 -	2	27	4.04
2 -	3	38	5.68
3 -	4	33	4.93
4 -	5	24	3.59
5 -	6	35	5.23
6 -	7	24	3.59
7 -	8	21	3.14
8 -	9	25	3.74
9 -	10	12	1.79
10 -	11	23	3.44
11 -	12	20	2.99
12 -	13	14	2.09
13 -	14	14	2.09
14 -	15	14	2.09
15 -	16	22	3.29
16 -	17	67	10.01
17 -	18	79	11.81
18 -	19	25	3.74
19 -	20	9	1.35
20 -	21	15	2.24
21 -	22	19	2.84
22 -	23	26	3.89
23 -	24	44	6.58
24 -	25	37	5.53
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MS AT

LEVEL		COUNT	PERCENT
0 -	2	103	15.40
2 -	4	14	2.09
4 -	6	8	1.20
6 -	8	15	2.24
8 -	10	25	3.74
10 -	12	48	7.17
12 -	14	31	4.63
14 -	16	41	6.13
16 -	18	55	8.22
18 -	20	31	4.63
20 -	22	40	5.98
22 -	24	37	5.53
24 -	26	37	5.53
26 -	28	27	4.04
28 -	30	22	3.29
30 -	32	37	5.53
32 -	34	18	2.69
34 -	36	9	1.35
36 -	38	4	.60
38 -	40	2	.30
40 -	42	1	.15
42 -	44	8	1.20
44 -	46	37	5.53
46 -	48	12	1.79
48 -	50	6	.90
50 -	52	1	.15
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	1	.15
400 -	600	84	12.56
600 -	800	44	6.58
800 -	1000	9	1.35
1000 -	1200	18	2.69
1200 -	1400	14	2.09
1400 -	1600	34	5.08
1600 -	1800	41	6.13
1800 -	2000	43	6.43
2000 -	2200	80	11.96
2200 -	2400	55	8.22
2400 -	2600	50	7.47
2600 -	2800	48	7.17
2800 -	3000	24	3.59
3000 -	3200	71	10.61
3200 -	3400	22	3.29
3400 -	3600	18	2.69
3600 -	3800	7	1.05
3800 -	4000	1	.15
4000 -	4200	0	0.00
4200 -	4400	2	.30
4400 -	4600	1	.15
4600 -	4800	2	.30
4800 -	5000	0	0.00

TABLE F-111.

1970 CHEVROLET 32000 LB GVW STAKE WITH 366 CID V8, TRUCK 24 10/23/72 RUN 7
RUN DURATION 21.27 MIN. IDLE SPEED 500 RPM. IDLE VAC. 16.0 IN. HG.

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1678.0159	663.9559	26.9526	630	3000.0000	475.0000	2525.0000
MV	2	13.6008	8.2195	.3275	630	24.2500	1.0000	23.2500
SPD	3	20.9429	160.9355	6.9118	630	4040.0000	.3333	4039.6667

PERCENT OF TIME MV AT

LEVEL		COUNT	PERCENT
0 -	1	0	0.00
1 -	2	69	10.79
2 -	3	43	6.83
3 -	4	24	4.60
4 -	5	13	2.06
5 -	6	17	2.70
6 -	7	19	3.02
7 -	8	18	2.86
8 -	9	18	2.86
9 -	10	5	.79
10 -	11	13	2.06
11 -	12	9	1.43
12 -	13	17	2.70
13 -	14	21	3.33
14 -	15	3	.48
15 -	16	14	2.22
16 -	17	43	6.83
17 -	18	68	10.79
18 -	19	12	1.90
19 -	20	9	1.43
20 -	21	12	1.90
21 -	22	14	2.22
22 -	23	39	6.19
23 -	24	92	14.60
24 -	25	34	5.40
25 -	26	0	0.00
26 -	27	0	0.00
27 -	28	0	0.00
28 -	29	0	0.00
29 -	30	0	0.00

PERCENT OF TIME MB AT

LEVEL		COUNT	PERCENT
0 -	2	239	37.94
2 -	4	13	2.06
4 -	6	7	1.11
6 -	8	11	1.75
8 -	10	12	1.90
10 -	12	21	3.33
12 -	14	15	2.38
14 -	16	17	2.70
16 -	18	22	3.49
18 -	20	29	4.60
20 -	22	29	4.60
22 -	24	36	5.71
24 -	26	31	4.92
26 -	28	40	6.35
28 -	30	27	4.29
30 -	32	12	1.90
32 -	34	15	2.38
34 -	36	12	1.90
36 -	38	16	2.54
38 -	40	7	1.11
40 -	42	14	2.22
42 -	44	4	.63
44 -	46	0	0.00
46 -	48	0	0.00
48 -	50	0	0.00
50 -	52	0	0.00
52 -	54	0	0.00
54 -	56	0	0.00
56 -	58	0	0.00
58 -	60	0	0.00

PERCENT OF TIME RPM AT

LEVEL		COUNT	PERCENT
0 -	200	0	0.00
200 -	400	0	0.00
400 -	600	81	12.86
600 -	800	26	4.13
800 -	1000	6	.95
1000 -	1200	23	3.65
1200 -	1400	53	8.41
1400 -	1600	51	8.10
1600 -	1800	84	13.33
1800 -	2000	92	14.60
2000 -	2200	70	11.11
2200 -	2400	51	8.10
2400 -	2600	45	7.14
2600 -	2800	22	3.49
2800 -	3000	25	3.97
3000 -	3200	1	.16
3200 -	3400	0	0.00
3400 -	3600	0	0.00
3600 -	3800	0	0.00
3800 -	4000	0	0.00
4000 -	4200	0	0.00
4200 -	4400	0	0.00
4400 -	4600	0	0.00
4600 -	4800	0	0.00
4800 -	5000	0	0.00

ENGINE AND VEHICLE PERFORMANCE
S. A. R. R. TRUCK 25

1970 DODGE 24,000-lb GVW VAN
WITH 318 CID V-8 ENGINE

TABLE F-112.

1970 DODGE 24000 LB GVW VAN 3 CID V8 TRUCK 25 11/29/72 RUN 1

RUN DURATION 19.61 MIN IDLE SPEED .. RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1970.4727	734.7811	7.3685	9944	3635.0000	530.0000	3105.0000
MV	2	12.9659	8.1974	.0822	9944	24.9250	.0000	24.9250
SPD	3	20.0275	11.2538	.1129	9944	44.1333	.0000	44.1333
TP	4	1.4074	1.3036	.0131	9944	4.5500	.0000	4.5500

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	3646	36.67
NOT	1	.01

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	466	18.74
3	917	36.84
4	1090	43.85
5	9	.36
6	0	.00
7	3	.12

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	10	.10
1. - 2.	279	2.81
2. - 3.	807	8.12
3. - 4.	957	9.62
4. - 5.	674	6.78
5. - 6.	629	6.33
6. - 7.	343	3.45
7. - 8.	391	3.93
8. - 9.	300	3.02
9. - 10.	129	1.30
10. - 11.	160	1.61
11. - 12.	141	1.42
12. - 13.	127	1.28
13. - 14.	175	1.76
14. - 15.	147	1.48
15. - 16.	257	2.58
16. - 17.	97	.98
17. - 18.	199	2.00
18. - 19.	979	9.85
19. - 20.	368	3.70
20. - 21.	213	2.14
21. - 22.	264	2.65
22. - 23.	490	4.93
23. - 24.	1376	13.84
24. - 25.	432	4.34
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1008	10.14
2. - 4.	182	1.83
4. - 6.	207	2.08
6. - 8.	179	1.80
8. - 10.	198	1.99
10. - 12.	389	3.91
12. - 14.	722	7.26
14. - 16.	746	7.50
16. - 18.	556	5.59
18. - 20.	714	7.18
20. - 22.	594	5.97
22. - 24.	734	7.38
24. - 26.	758	7.62
26. - 28.	689	6.93
28. - 30.	742	7.46
30. - 32.	256	2.57
32. - 34.	41	.41
34. - 36.	58	.58
36. - 38.	178	1.79
38. - 40.	435	4.37
40. - 42.	436	4.38
42. - 44.	120	1.21
44. - 46.	2	.02
46. - 48.	0	.00
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	64	.64
600. - 800.	1062	10.68
800. - 1000.	255	2.56
1000. - 1200.	362	3.64
1200. - 1400.	585	5.88
1400. - 1600.	627	6.31
1600. - 1800.	771	7.75
1800. - 2000.	1052	10.58
2000. - 2200.	1339	13.47
2200. - 2400.	811	8.16
2400. - 2600.	546	5.51
2600. - 2800.	683	6.87
2800. - 3000.	1229	12.36
3000. - 3200.	426	4.28
3200. - 3400.	98	.99
3400. - 3600.	31	.31
3600. - 3800.	1	.01
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

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TABLE F-113.
1970 DODGE 24000 LB GVW VAN 3 CID V8 TRUCK 25 11/29/72 RUN 2
RUN DURATION 22.61 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1769.6448	762.2117	7.1077	11500	3540.0000	480.0000	3060.0000
MV	2	13.0887	8.2055	.0765	11500	24.9250	.0250	24.9000
TP	4	1.3104	1.3405	.0125	11500	4.3900	.0000	4.3900

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5046	43.88
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	822	28.54
3	853	29.67
4	1197	41.63
5	0	.00
6	0	.00
7	3	.10

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	40	.35
1. - 2.	585	5.09
2. - 3.	1018	8.85
3. - 4.	693	6.03
4. - 5.	699	6.08
5. - 6.	979	8.51
6. - 7.	581	5.05
7. - 8.	146	1.27
8. - 9.	123	1.07
9. - 10.	119	1.03
10. - 11.	107	.93
11. - 12.	133	1.16
12. - 13.	192	1.67
13. - 14.	110	.96
14. - 15.	109	.95
15. - 16.	127	1.10
16. - 17.	171	1.49
17. - 18.	162	1.41
18. - 19.	1926	16.71
19. - 20.	640	5.56
20. - 21.	204	1.77
21. - 22.	317	2.76
22. - 23.	547	4.76
23. - 24.	1358	11.81
24. - 25.	368	3.20
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	0	.00
200. - 400.	0	.00
400. - 600.	84	.73
600. - 800.	2341	20.36
800. - 1000.	348	3.03
1000. - 1200.	374	3.25
1200. - 1400.	528	4.59
1400. - 1600.	748	6.50
1600. - 1800.	1048	9.10
1800. - 2000.	1421	12.35
2000. - 2200.	1270	11.04
2200. - 2400.	863	7.50
2400. - 2600.	445	3.87
2600. - 2800.	771	6.70
2800. - 3000.	987	8.58
3000. - 3200.	328	2.85
3200. - 3400.	42	.37
3400. - 3600.	6	.05
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-114.

1976 DODGE 26000 LB GVW VAN 2 CYL V8 TRUCK 25 11/30/72 RUN 6

RUN DURATION 20.10 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1717.5896	421.8651	6.3601	9560	3280.0000	15.0000	3265.0000
MV	2	13.5917	4.4052	.0860	9560	24.9750	.0750	24.9000
SPD	3	20.7493	12.1337	.1241	9560	47.6000	.0667	47.5333
TP	4	1.3313	1.3139	.0134	9560	3.7100	.0000	3.7100

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	3668	38.37
WOT	0	.00

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	441	19.45
3	647	27.07
4	1297	54.27
5	0	.00
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
0. - 1.	11	.12
1. - 2.	567	5.93
2. - 3.	781	8.17
3. - 4.	699	7.31
4. - 5.	454	4.75
5. - 6.	327	3.42
6. - 7.	535	5.60
7. - 8.	310	3.24
8. - 9.	229	2.40
9. - 10.	168	1.76
10. - 11.	115	1.20
11. - 12.	115	1.20
12. - 13.	135	1.41
13. - 14.	72	.75
14. - 15.	105	1.10
15. - 16.	130	1.36
16. - 17.	100	1.00
17. - 18.	78	.82
18. - 19.	221	2.31
19. - 20.	1382	14.46
20. - 21.	266	2.78
21. - 22.	330	3.45
22. - 23.	650	6.80
23. - 24.	1318	13.79
24. - 25.	382	4.00
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
0. - 2.	1020	10.67
2. - 4.	204	2.13
4. - 6.	135	1.41
6. - 8.	176	1.84
8. - 10.	219	2.29
10. - 12.	329	3.44
12. - 14.	696	7.28
14. - 16.	716	7.49
16. - 18.	537	5.62
18. - 20.	482	5.04
20. - 22.	474	4.96
22. - 24.	473	4.95
24. - 26.	403	4.48
26. - 28.	737	7.71
28. - 30.	759	7.94
30. - 32.	449	4.70
32. - 34.	148	1.55
34. - 36.	71	.74
36. - 38.	23	.24
38. - 40.	6	.06
40. - 42.	373	3.90
42. - 44.	280	2.93
44. - 46.	269	2.81
46. - 48.	63	.66
48. - 50.	0	.00
50. - 52.	0	.00
52. - 54.	0	.00
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
0. - 200.	1	.01
200. - 400.	0	.00
400. - 600.	1	.01
600. - 800.	1316	13.77
800. - 1000.	282	2.95
1000. - 1200.	353	3.69
1200. - 1400.	644	6.74
1400. - 1600.	1211	12.67
1600. - 1800.	1635	17.10
1800. - 2000.	1383	14.47
2000. - 2200.	690	7.22
2200. - 2400.	415	4.34
2400. - 2600.	422	4.41
2600. - 2800.	260	2.72
2800. - 3000.	332	3.47
3000. - 3200.	33	.35
3200. - 3400.	2	.02
3400. - 3600.	0	.00
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-115.

1970 DODGE 24000 LB GVW VAN CID V8 TRUCK 25 11/30/72 RUN

RUN DURATION 21.46 MIN IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1565.4095	[illegible]	8.8566	9856	3510.0000	.0000	3510.0000
MV	2	13.4005	8.6658	.0873	9856	24.9500	.0000	24.9500
SPD	3	19.4697	12.7666	.1286	9856	52.4667	.0000	52.4667
TP	4	1.4718	1.7502	.0177	9856	4.9400	.0000	4.9400

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4375	44.39
WOT	1441	14.62

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	450	18.26
3	541	21.95
4	1471	59.70
5	0	.00
6	0	.00
7	2	.08

PERCENT OF TIME MV AT

LEVEL <	COUNT	PERCENT
. - 1.	213	2.16
1. - 2.	982	9.96
2. - 3.	648	6.57
3. - 4.	744	[illegible]
4. - 5.	425	4.31
5. - 6.	252	2.56
6. - 7.	291	2.95
7. - 8.	178	1.81
8. - 9.	168	1.70
9. - 10.	171	1.73
10. - 11.	111	1.13
11. - 12.	111	1.13
12. - 13.	142	1.44
13. - 14.	91	.92
14. - 15.	124	1.26
15. - 16.	139	1.41
16. - 17.	266	2.68
17. - 18.	244	2.48
18. - 19.	311	3.16
19. - 20.	1267	[illegible]
20. - 21.	199	2.02
21. - 22.	357	3.62
22. - 23.	802	8.11
23. - 24.	1549	15.72
24. - 25.	273	2.77
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL <	COUNT	PERCENT
. - 2.	1279	12.98
2. - 4.	206	2.09
4. - 6.	156	1.58
6. - 8.	206	2.09
8. - 10.	385	3.91
10. - 12.	431	4.37
12. - 14.	456	4.63
14. - 16.	470	4.77
16. - 18.	437	4.43
18. - 20.	482	4.89
20. - 22.	809	8.21
22. - 24.	1010	10.25
24. - 26.	995	10.10
26. - 28.	734	7.45
28. - 30.	437	4.43
30. - 32.	214	2.17
32. - 34.	82	.83
34. - 36.	44	.45
36. - 38.	29	.29
38. - 40.	24	.24
40. - 42.	23	.23
42. - 44.	74	.75
44. - 46.	206	2.09
46. - 48.	400	4.06
48. - 50.	211	2.14
50. - 52.	52	.53
52. - 54.	4	.04
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL <	COUNT	PERCENT
. - 200.	17	.17
200. - 400.	11	.11
400. - 600.	120	1.22
600. - 800.	1605	16.28
800. - 1000.	494	5.01
1000. - 1200.	566	5.74
1200. - 1400.	1296	13.15
1400. - 1600.	1630	16.54
1600. - 1800.	1408	14.29
1800. - 2000.	710	7.20
2000. - 2200.	405	4.11
2200. - 2400.	264	2.68
2400. - 2600.	176	1.79
2600. - 2800.	188	1.91
2800. - 3000.	515	5.23
3000. - 3200.	396	4.02
3200. - 3400.	50	.51
3400. - 3600.	5	.05
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-116.

1976 DODGE [illegible] GVW VAN 3 [illegible] VM TRUCK 25 11/30/72 RUN 9

RUN DURATION 21.24 MIN IDLE SPEED [illegible] RPM IDLE VAC [illegible] INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1547.9489	656.2814	6.3209	10780	3575.0000	410.0000	3165.0000
MV	2	13.7589	8.4761	.0816	10780	24.9750	.3000	24.6750
SPD	3	18.9529	12.4190	.1196	10780	52.0000	.0000	52.0000
TP	4	8.4038	1.7038	.0164	10780	6.9100	.8000	6.9100

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	5128	47.57
NOT	1523	14.13

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	0	.00
2	606	22.49
3	571	21.19
4	1518	56.33
5	0	.00
6	0	.00
7	0	.00

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
< 1.	178	1.65
1. - 2.	1236	11.46
2. - 3.	850	7.88
3. - 4.	479	4.44
4. - 5.	686	2.63
5. - 6.	207	1.92
6. - 7.	191	1.77
7. - 8.	165	1.53
8. - 9.	203	1.88
9. - 10.	131	1.22
10. - 11.	208	1.93
11. - 12.	185	1.72
12. - 13.	218	2.02
13. - 14.	169	1.57
14. - 15.	225	2.09
15. - 16.	158	1.46
16. - 17.	217	2.01
17. - 18.	167	1.55
18. - 19.	487	4.52
19. - 20.	1716	15.88
20. - 21.	198	1.84
21. - 22.	379	3.52
22. - 23.	891	8.27
23. - 24.	1337	12.40
24. - 25.	285	2.64
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
< 2.	1785	16.56
2. - 4.	180	1.67
4. - 6.	215	1.99
6. - 8.	272	2.52
8. - 10.	357	3.31
10. - 12.	483	4.48
12. - 14.	498	4.55
14. - 16.	496	4.59
16. - 18.	611	5.67
18. - 20.	538	4.99
20. - 22.	439	4.07
22. - 24.	611	5.67
24. - 26.	987	9.16
26. - 28.	506	4.69
28. - 30.	857	7.95
30. - 32.	305	2.83
32. - 34.	102	.95
34. - 36.	71	.66
36. - 38.	102	.95
38. - 40.	114	1.06
40. - 42.	269	2.50
42. - 44.	164	1.52
44. - 46.	123	1.14
46. - 48.	58	.54
48. - 50.	49	.45
50. - 52.	0	.00
52. - 54.	1	.01
54. - 56.	0	.00
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
< 200.	0	.00
200. - 400.	0	.00
400. - 600.	94	.89
600. - 800.	2141	19.87
800. - 1000.	488	4.65
1000. - 1200.	841	8.73
1200. - 1400.	851	7.89
1400. - 1600.	1232	11.43
1600. - 1800.	1468	13.56
1800. - 2000.	1197	11.10
2000. - 2200.	505	4.68
2200. - 2400.	317	2.94
2400. - 2600.	597	5.54
2600. - 2800.	558	5.17
2800. - 3000.	238	2.21
3000. - 3200.	104	.96
3200. - 3400.	39	.36
3400. - 3600.	6	.06
3600. - 3800.	0	.00
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00

TABLE F-117.

1970 DODGE 24000 LB GVW VAN 3 [illegible] VR TRUCK 25 11/30/72 RUN 16
RUN DURATION 20.02 MIN-IDLE SPEED RPM IDLE VAC INCHES HG

VAR	NO	MEAN	S.D.	S.E. OF MEAN	SAMPLE	MAXIMUM	MINIMUM	RANGE
RPM	1	1667.6716	673.6360	6.6866	10156	3690.0000	5.0000	3685.0000
MV	2	13.9141	8.6712	.0861	10156	26.9000	.0000	26.9000
SPD	3	14.7763	12.1647	.1207	10156	56.6667	.0667	56.6000
TP	4	1.3987	1.6832	.0167	10156	4.9400	.0000	4.9400

PERCENT OF TIME THROTTLE POSITION AT

LEVEL	COUNT	PERCENT
CLOSED	4591	45.20
WOT	871	8.58

PERCENT OF TIME GEAR SHIFT POSITION AT

GEAR	COUNT	PERCENT
1	41	1.22
2	503	19.81
3	528	20.80
4	1475	58.06
5	0	.00
6	0	.00
7	1	.04

PERCENT OF TIME MV AT

LEVEL	COUNT	PERCENT
. - 1.	223	2.20
1. - 2.	1215	11.96
2. - 3.	764	7.52
3. - 4.	[illegible]	2.29
4. - 5.	230	2.26
5. - 6.	182	1.79
6. - 7.	239	2.35
7. - 8.	148	1.46
8. - 9.	181	1.78
9. - 10.	204	2.01
10. - 11.	279	2.75
11. - 12.	189	1.86
12. - 13.	157	1.55
13. - 14.	139	1.37
14. - 15.	192	1.89
15. - 16.	135	1.33
16. - 17.	202	1.99
17. - 18.	[illegible]	[illegible]
18. - 19.	703	6.92
19. - 20.	1186	11.68
20. - 21.	273	2.69
21. - 22.	413	4.07
22. - 23.	621	6.11
23. - 24.	1449	14.27
24. - 25.	375	3.69
25. - 26.	0	.00
26. - 27.	0	.00
27. - 28.	0	.00
28. - 29.	0	.00
29. - 30.	0	.00

PERCENT OF TIME MS AT

LEVEL	COUNT	PERCENT
. - 2.	1230	12.11
2. - 4.	180	1.77
4. - 6.	186	1.83
6. - 8.	282	2.78
8. - 10.	374	3.68
10. - 12.	465	4.58
12. - 14.	557	5.48
14. - 16.	800	7.88
16. - 18.	605	5.96
18. - 20.	330	3.25
20. - 22.	485	4.78
22. - 24.	475	4.68
24. - 26.	1036	10.20
26. - 28.	597	5.88
28. - 30.	647	6.37
30. - 32.	380	3.74
32. - 34.	146	1.44
34. - 36.	47	.46
36. - 38.	44	.43
38. - 40.	134	1.32
40. - 42.	429	4.22
42. - 44.	251	2.47
44. - 46.	187	1.84
46. - 48.	45	.44
48. - 50.	38	.37
50. - 52.	5	.05
52. - 54.	0	.00
54. - 56.	1	.01
56. - 58.	0	.00
58. - 60.	0	.00

PERCENT OF TIME RPM AT

LEVEL	COUNT	PERCENT
. - 200.	1	.01
200. - 400.	11	.11
400. - 600.	72	.71
600. - 800.	1655	16.30
800. - 1000.	512	5.04
1000. - 1200.	585	5.76
1200. - 1400.	670	6.60
1400. - 1600.	1244	12.25
1600. - 1800.	1478	14.55
1800. - 2000.	1213	11.94
2000. - 2200.	544	5.36
2200. - 2400.	381	3.75
2400. - 2600.	446	4.39
2600. - 2800.	707	6.96
2800. - 3000.	434	4.27
3000. - 3200.	102	1.00
3200. - 3400.	46	.45
3400. - 3600.	14	.14
3600. - 3800.	1	.01
3800. - 4000.	0	.00
4000. - 4200.	0	.00
4200. - 4400.	0	.00
4400. - 4600.	0	.00
4600. - 4800.	0	.00
4800. - 5000.	0	.00